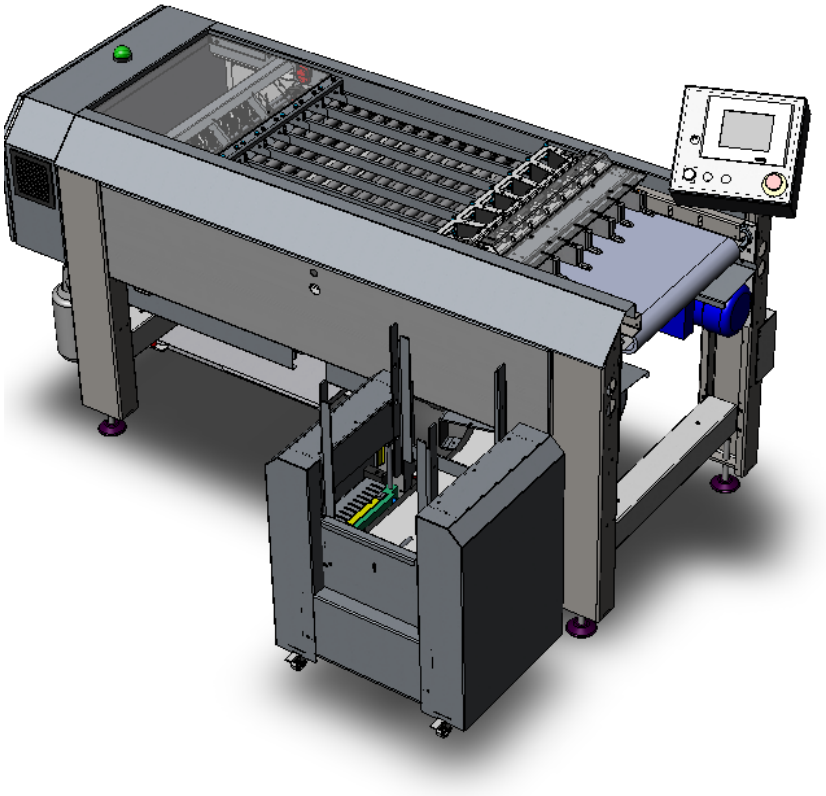

USER MANUAL
SPEEDPACK 110

Prinzen B.V.
Weverij 18
7122 MS AALTEN
P.O. Box 85
7120 AB AALTEN
NEDERLAND

Website: www.prinzen.com

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INTRODUCTION

CAUTION:

This manual must be read by or to each person, before that person operates, cleans, repairs, supervises the operation of, or uses this machine in any way.

CAUCION:

Este manual debe ser leido por a cada persona antes de comenzar a operar, limpiar, reparar, supervisar la operación de, o utilizar esta maquina de cualquier manera.

ATTENTION:

Ce manuel doit être lu par, ou a, toute personne avant qu'elle ne mette en route, nettoie, répare, supervise le fonctionnement ou utilise cette machine, de quelque manière que ce soit.

VORSICHT:

Jeder, der diese Maschine bedienen, reinigen, reparieren, überwachen oder auf irgendeine Weise benutzen soll, muß vorher diese Hinweise lesen oder vorgelesen bekommen.

ATTENTIE:

Een ieder, die deze machine bedient, reinigt, repareert, controleert of op enige andere wijze gebruiken zal, dient vooraf deze bedieningsvoorschriften te lezen.

CAUTELA:

Il presente manuale deve essere letto da o ad ogni membro del personale prima che tale persona operi, pulisca, ripari, diriga il funzionamento o utilizzi la macchina in qualsiasi modo.

LIABILITY

Prinzen BV cannot be held responsible for any costs, damage or personal injury if its system is not used in accordance with the instructions as described in this manual.
The information provided in this manual is valid for the standard design of the system. Parts of your system may differ from this standard design.
Since Prinzen BV is constantly improving its systems it may be possible that there are small differences between your system and this manual.
Though this manual has been put together with the utmost care, Prinzen BV cannot accept any responsibility for costs, damage or personal injury arising from any fault and/or incompleteness in the content of this document.

GENERAL

This manual contains important information concerning safety, operation, adjustment, maintenance, cleaning and repair of the Prinzen BV system. For uncomplicated functioning of the system, read this manual carefully and work according to the directions in this manual.
Beside the design and the used materials also the operation and maintenance have great impact on the functioning, the life span and the operational costs of our system. You, as the owner of the system, are responsible for the execution of maintenance according to the directions and the intervals in this manual.
This manual will help you to gain knowledge to use the system as it should be used: Correct operated and excellent maintained.

A Prinzen BV system meets the demands, mentioned in the European machine guideline (CE).

CE

COPYRIGHT

Prinzen BV ©
This document contains confidential information and information protected by copyright of Prinzen BV. Reproduction or transmission of any part of this document to third parties, or the use thereof is only permitted after express written permission of Prinzen BV.
All rights rest with Prinzen BV, Aalten, The Netherlands.
Written by Visser Machine Services.

GENERAL

This manual contains important information concerning safety, operation, cleaning, maintenance and breakdown remedies.
At all time this manual must be accessible for all personnel working with the system. Keep it in a permanent place, close to the system. When the manual is lost or damaged, order a new copy as soon as possible.
The user of the system should read and understand the total user manual before operating, cleaning, maintaining and repairing the system.
Never change the sequence of procedures as described in this manual.
Beside this manual also knowledge about the installation and adjustments of the system may be helpful for communication with the Prinzen service department or dealer. This information is described in the English-language service manual, which is also delivered with this system.

SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read this chapter and chapter Safety.

LEGAL REGULATIONS

- All safety directions stated in this manual must be observed.
- Along with the safety regulations in this chapter the instructions of the qualified trade organization of your country must be observed to avoid accidents.
- Before starting to repair or maintain the machine always consult your safety manager to discuss if a work permit is required for this job.
- All safety devices in the machine and the safety indications mentioned in this manual are conditions to control the machine safely. The owner and his qualified personnel are in the end the ones responsible for the safe use of the machine.
- The owner is responsible for the ability of the qualified personnel to perform its duties according to the safety measures.
- Technical changes, which influence the safety working of the machine, may only be executed by the service department of Prinzen.
- Do not change controls, and/or PLC programs, without written permission from Prinzen because this may affect the safety of the machine.
- Only use genuine Prinzen parts or CE-certified parts for replacement.
- Prinzen cannot be held responsible for any consequential damages to the system or other installations that were caused by technical changes, unprofessional maintenance and repairs on our system, which were executed by the customer.
- Warranty becomes invalid when consequential damages to the system, caused by technical changes, unprofessional maintenance and repairs, were executed by the customer.

	DANGER! Failure to obey legal regulations may result in permanent personal injury or death.
	ATTENTION! Failure to obey legal regulations may result in damage to the system.

HOW TO USE THIS MANUAL?

The manual is constructed to provide a maximum amount of information with a minimum amount of searching. The key to easy reference is the Table of contents. Familiarize yourself with it and you won't have any trouble locating information from any area of machine.

WHO SHOULD USE THIS MANUAL?

Owner:
The owner (contractor, concern) is the person that owns or hires the machine and puts this machine into production. The owner must take care that the users of the system will read the manual.

Operator:
The operator is the person who operates the system as ordered by the owner. The operator must read the chapters Introduction, Safety, Machine description, Operation.

Professional:
A professional is someone who can assess the duties appointed to him on account of his education, knowledge and experience and who can assess the dangers attached, thereby avoiding these dangers.

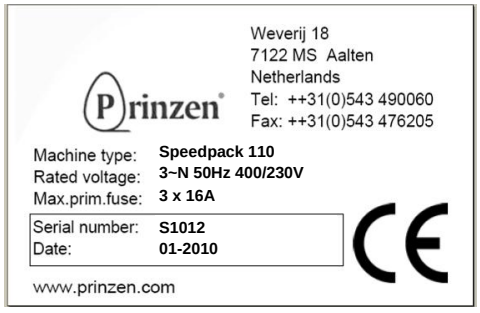
Maintenance engineer:
The maintenance engineer is the professional who is deemed qualified by the owner to perform certain duties. The qualification only applies to those assigned duties. The maintenance engineer must read the total manual.

MANUAL INFORMATION

Machine type:	Speedpack 110
Manual revision:	1.5 (July 2011)

SERIAL NUMBER

Each machine has a unique serial number printed on the machine tag, which can be found in the electrical cabinet. Note down this serial number to have it available when contacting the Prinzen service department.



SYMBOLS

Symbols are used in the manual when special attention/caution is required while working on the system. The special symbols and their meaning are depicted in the below table.

Symbol:	Meaning:
	DANGER! This symbol is used when instructions should be followed to the letter. If not they may result in permanent personal injury or death.
	CAUTION! This symbol is used when instructions should be followed to the letter. If not they may result in permanent personal injury.
	ATTENTION! This symbol is used when instructions should be followed to the letter. If not they may cause damage to the system.
	NOTE! This symbol advises to use edible products and to work in a hygienically way. Disregarding this advice may cause illness.
	TIP! This symbol is used as a helpful hint to simplify the execution of certain tasks.

EC-DECLARATION OF CONFORMITY FOR MACHINERY

Concerning the machinery directives:

Prinzen B.V.
Weverij 18
7122 MS AALTEN
The Netherlands

1 Herewith declares that we are the manufacturer of the egg-packing machine on which this declaration applies:

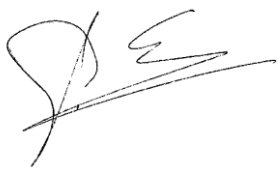
Brand: Prinzen
Type: **Speedpack 110**
Serial number:

2 The machine is developed in compliance with the demands of the machinery directive 2006/42/EC (most recent).

3 The machine meets the provisions of the following directives:
The low voltage equipment directive 2006/95/EC (most recent).
The EMC-directive 2004/108/EC (most recent).

4 The machine is developed and constructed according the following standard:
NEN-EN-IEC 60204-1: 2006 Electrical equipment of industrial machines.

Signed in: Aalten
Date: 18-05-2010



Signed by: G.J. van Eerden

EC-DECLARATION OF CONFORMITY FOR MACHINERY

Concerning the machinery directives:

Prinzen B.V.
Weverij 18
7122 MS AALTEN
The Netherlands

1 Herewith declares that we are the manufacturer of the egg-packing machine on which this declaration applies:

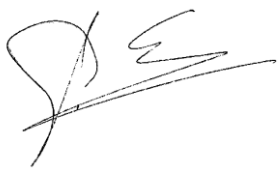
Brand:	Prinzen
Type:	**Tray stacker PS4**
Serial number:	

2 The machine is developed in compliance with the demands of the machinery directive 2006/42/EC (most recent).

3 The machine meets the provisions of the following directives:
The low voltage equipment directive 2006/95/EC (most recent).
The EMC-directive 2004/108/EC (most recent).

4 The machine is developed and constructed according the following standard:
NEN-EN-IEC 60204-1: 2006 Electrical equipment of industrial machines.

Signed in:	Aalten
Date:	18-05-2010



Signed by: G.J. van Eerden

1. SAFETY

GENERAL

Only persons meeting the following requirements are authorized to work with the system. These persons should be:
- Skilled and specifically trained for their duties.
- Familiar with the contents of this manual.
- Familiar with the locations of the emergency buttons and other safety devices.
- 18 years old or above.
- Familiar with the national and regional regulations regarding safety.

These persons should have reached the minimum legal age required to perform this work.
These persons are NOT under influence of any drug, medicine or alcoholic drink.

DANGER!
Keep children and incompetent persons away from the system!

The system is only to be used for the purpose it was designed for. See the chapter Machine description for details.

SAFETY REGULATIONS

Do not use the system when safety devices have been removed. This system may contain sharp edged parts, moving parts and rotating parts.
When protective covers are removed, sharp edges and pinch points may be exposed. Use extreme caution and avoid touching or striking these areas with your hands or body because they may cause injuries.

Do not enter parts of your body or objects into openings in the system. This may lead to serious physical injury or damage to the system. It is dangerous to be in, on or under the system while it is operational.

Loosely hanging clothing, wide sleeved clothing, ties, chains or rings are prohibited. Long hair should be worn tied back.

Make sure that there is sufficient light around the machine.

Do not touch or come near moving or rotating parts. Physical contact with these parts is dangerous.

Do not stand or walk on any of the system parts.

Do not work alone on the system. At least one other person should be present

Before starting to clean, maintain or inspect the machine or before remedying breakdowns follow the steps mentioned below:
- Switch off the machine and secure it against accidental switching on.
- Post “Do not switch on” warning sign on the main switch:
- Operate the nearest emergency button.
- Make sure that no components are moving.

Before switching on the machine, you must check the following:
- All safety devices are in place and are functioning.
- No other persons are in, underneath or above the system.
- No tools or objects are in the system.
- No other persons are at risk.

Do not use water to clean electricity cabinets and other electronic components.

For save and easy operation keep the area and floor around the machine clean, free of oil, grease or obstacles. Remove superfluous fat and greasing oil after greasing duties.

When an extension cable is used for power supply, make sure that the cable diameter in relation to the length of the cable is correct. Make sure the cable is completely unrolled

Manual activation of safety switches is forbidden.
When the safety devices are put out of operation, the machine must first be switched off and secured against accidental switching on.

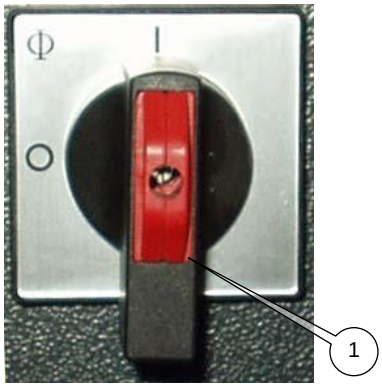
Work inside the electrical cabinet may only be undertaken by skilled personnel like Prinzen service engineers or its dealer’s service engineers.

Always switch off the main switch before opening electrical cabinets.

After switching off the main switch, parts inside the electrical cabinet remain live for approximately 1 minute. The frequency inverters may hold a high voltage charge during this time. Do not touch parts inside the electrical cabinet as long as displays of frequency inverters are on.

Several parts inside the electrical cabinet maintain voltage even when the main switch is turned off (main switch, main power supply, terminals for egg collecting belts, etcetera).

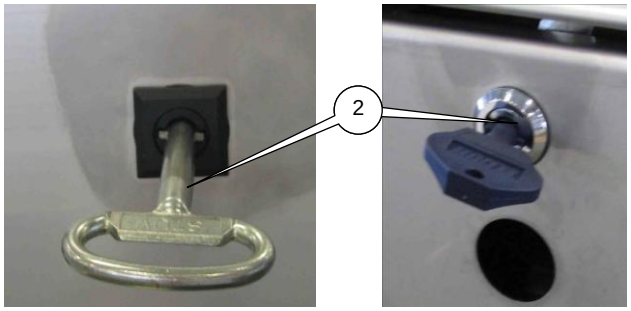
	DANGER! Failure to obey safety regulations may result in permanent personal injury or death.
	ATTENTION! Failure to obey safety regulations may result in damage to the system.

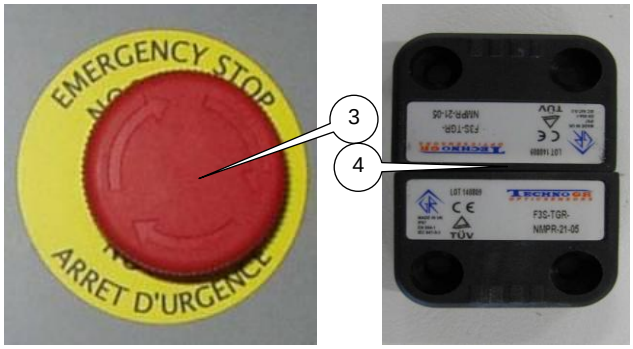


SAFETY PROVISIONS

Before operating the machine the safety devices must be checked for correct functioning. Also the protective covers must be mounted before starting to use the system. Repair or replace safety devices before using the system if they do not work properly.
Never rely solely on safety devices. Always switch off the system and lock up the power source (1) before working on the machine.

DANGER!
Protective covers safeguard dangerous machine areas. These covers are of utmost importance to operate the machine safely. Never operate the machine when protective covers are removed because serious injury or death may occur!

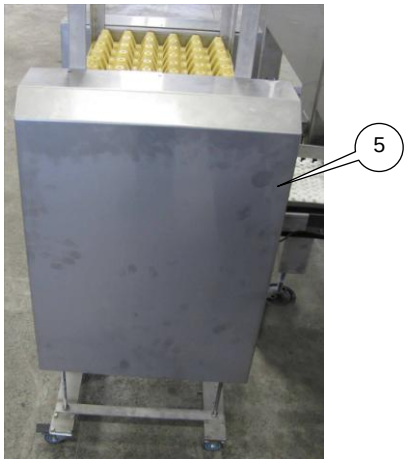




DEFINITION OF SAFETY DEVICES

Safety devices are: lockable doors (2), emergency buttons (3), safety switches (4) and protective covers (5).

The emergency button prevents the machine from operating and should stop the machine immediately when it is pressed. Safety switches are provided to prevent the operation of the machine or should stop the machine immediately when a door is opened. Protective covers shield off dangerous moving parts. These covers cannot be removed without tools.
Lockable doors are doors that can only be opened with a key. The key should only be in possession of a supervisor.



DANGER!
Lockable doors safeguard dangerous machine areas. These doors are of utmost importance to operate the machine safely. Never operate the machine when doors are open or not locked because serious injury or death may occur!

EMERGENCY BUTTON

To stop the machine in case of an emergency, the system has one or more emergency buttons.
Only use the emergency button in case of an emergency. When the emergency button is pressed, the system stops immediately. The button stays mechanically locked so the machine cannot start until it is considered safe to do so. Release the emergency button by turning it clockwise.
Do not release the emergency button when it is not certain why and by whom it was pressed.
Personnel working with the system must know the positions of the emergency buttons.

SAFETY INSPECTION PROCEDURE

Before starting the machine all protective covers must be in place, all doors must be closed and safety switches and emergency buttons must be operating. Trained personnel must check safety devices to assure proper operation.

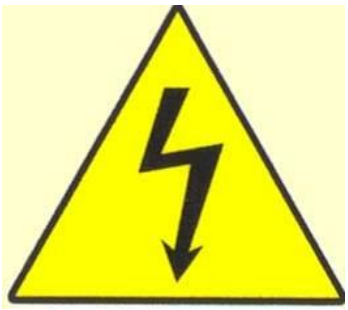
1. Check that all protective covers are in place and all doors are closed.
2. Start and stop the system.
3. Wait until the system has completely stopped and open a door.
4. Push the start button, the machine should not start.
5. Close the door.
6. Repeat the above steps 3, 4 and 5 for each door.
7. Make sure that the machine does not start with a door opened.
8. Check that all doors are closed and push an emergency button.
9. Push the start button, the machine should not start.
10. Release the emergency button.
11. Repeat the above steps 8, 9 and 10 for all emergency buttons.
12. Make sure that the machine does not start when any emergency button is pressed.

If the machine operates with any of the doors opened or when an emergency button is pressed, this machine is not safe to operate. Immediately call a qualified technician to repair the defective safety switch or emergency button.

WARNING LABELS

The Prinzen system makes dangerous movements. The system also contains dangerous parts when they contact the body. The following labels are posted as a warning. Understand and remember the meaning of the warning labels.

DANGER!
Keep the warning labels clean. When labels become unclear, replace them.



The flashlight label is used to warn for dangerous voltage inside a cabinet. Contacting parts inside this cabinet may result in permanent personal injury or death.

This sign is used to warn for dangerous movements. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.

This sign is used to warn for the danger of limbs being pulled in. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.

This sign is used to warn for crushing danger. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.

2. MACHINE DESCRIPTION

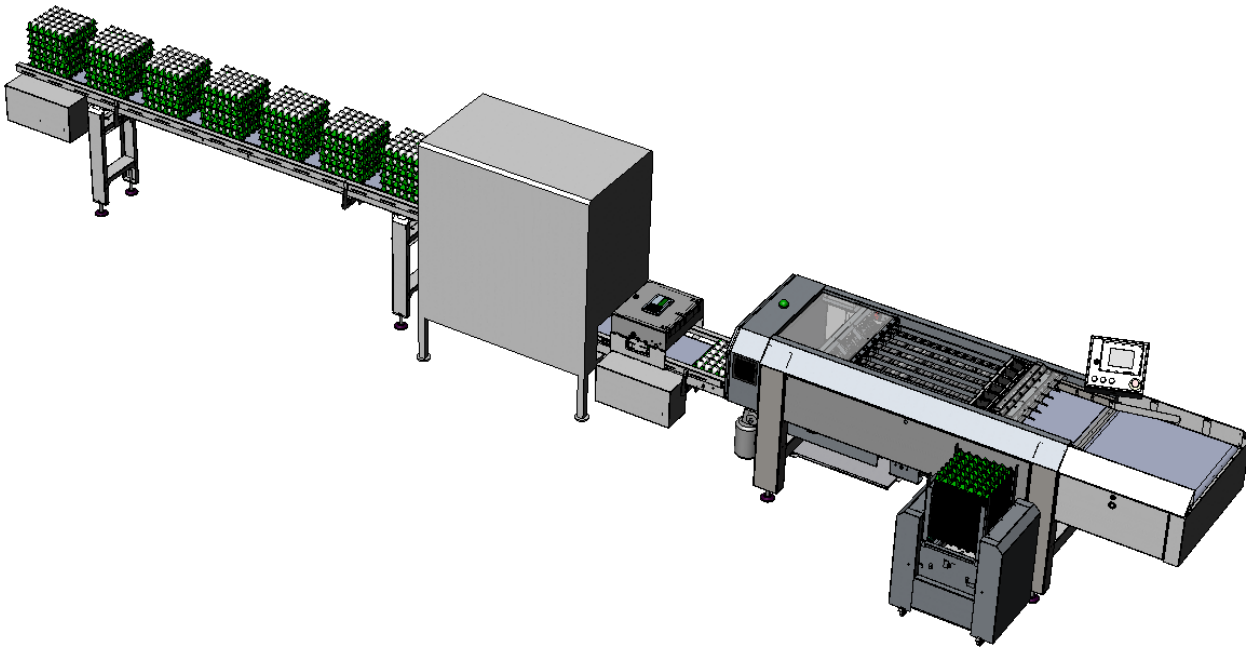
SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read the chapters Introduction and Safety.

MACHINE DESCRIPTION

The machine description gives information about the complete system.
It is possible to build a timeline with the speedpack and some optional systems. Below description is the most complete version of a timeline. It is possible that your system does not contain all the described optional systems, but since most of the systems in the timeline are described in this manual, also a general description of the timeline is part of this manual.
For detailed information of the speedpack see the Speedpack description below.
For detailed information of all the units of the timeline see the Unit description in this chapter.

TIMELINE



Use:
The Prinzen timeline consisting of a speedpack, a tray stacker and a buffer conveyor is used to assemble a random supply of eggs, coming from an egg collecting conveyor and pack these eggs into trays with the pointed end downwards, and stack these trays. Optionally it is possible to place a printer unit in the timeline.

Process:
Eggs are entering the speedpack that takes care of assembling the eggs and placing them into trays with the pointed end downward. The trays are transferred from the speedpack to the tray stacker. An optional printer marks the eggs. The tray stacker continuously stacks 6 trays and places these stacks onto the buffer conveyor.

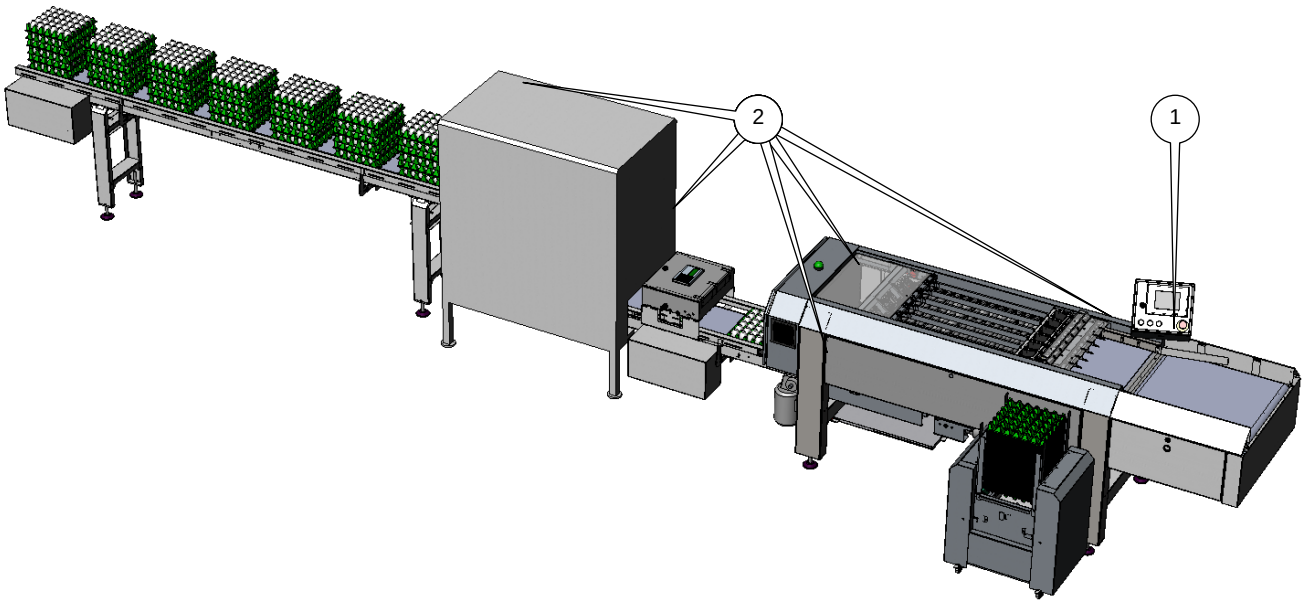
Chapters and Manuals:
See below mentioned chapters or manuals for detailed information:
This chapter for unit information.
Chapter operation for operation details.
Chapter maintenance for cleaning and maintenance information.
Service manual for information about adjusting the system.

Security:
The security of the system is created through a balance between safety and workability: An optimal workable situation is created for the operating personnel but safety was kept in mind.
Dangerous movements of the system are mostly protected with protective covers or safety doors, but there are exceptions. On a lot of places in the system it is possible to sustain injuries. The system is not completely secured with protective covers and makes unexpected starts and stops. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the system and do not touch it when the system is running production.
Read the safety instruction of the units in the chapter unit descriptions.

	CAUTION! Do not enter objects or body parts into the system when it is running production.
	ATTENTION! Do not enter objects or body parts into the system when it is running production.

POSITIONS SAFETY SWITCHES AND EMERGENCY BUTTONS

See below picture for position of the emergency stop (1) and the safety switches (2).



TECHNICAL SPECIFICATIONS

The construction of your system may differ slightly from the descriptions in this manual. Because of this the data in the technical specifications may be incorrect and/or incomplete for your system.
For complete and exact data, see the lay-out drawing, the electrical drawings and the machine tag of your system.

Speed:

Maximum capacity	:	40.000 eggs/hour

Weight:

Speedpack 110	:	± 450 kg
Tray stacker PS4	:	± 250 kg

Dimensions:

Speedpack 110	:	200 (l) x 145 (b) x 145 (h) cm.
Tray stacker PS4	:	150 (l) x 70 (b) x 150 (h) cm

Electrical data:

Connection voltage	:	400V 3 phase + N + PE 50Hz
Connection	:	5x2,5 mm²
Pre-fuse 3 phase	:	16 Amp, slow blowing
Pre-fuse 1 phase	:	25 Amp
Earth leak protection	:	A minimum leakage current of 200 mAmp (frequency inverters)
Power	:	1.5 kW
Maximum voltage deviation	:	-6% to +10%.
Electrical protection	:	IP55

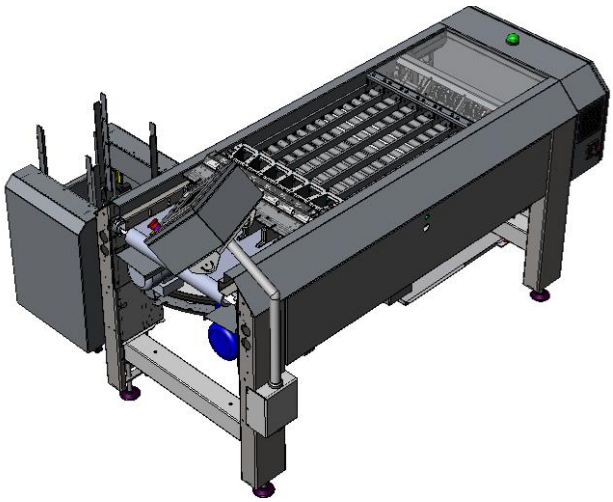
Pneumatic data:

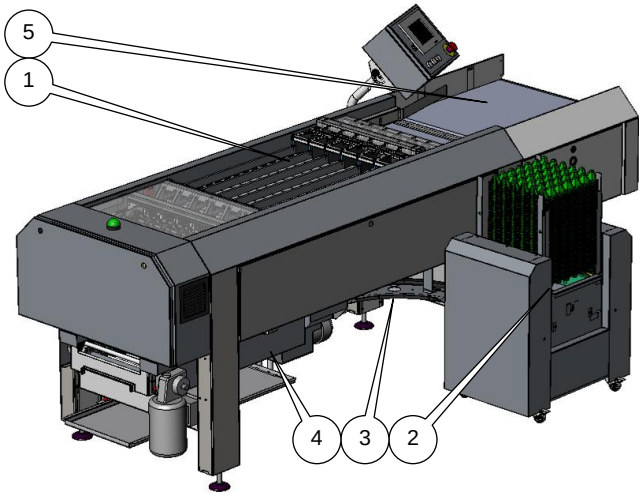
Nominal air consumption	:	Not applicable
Air pressure	:	Not applicable
Connection	:	Not applicable

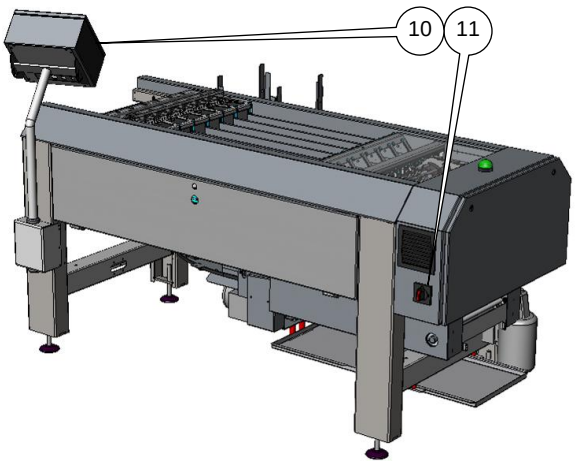
Restrictions:
Dirty eggs and eggs with cracks should be manually removed from the infeed conveyor.

The climate around the machine must have normal air moisture and a temperature in between 5ºC and 30ºC.

SPEEDPACK







Use:
The Prinzen speedpack is designed to pack a random supply of eggs into 30-cell trays with the pointed end downwards.

Construction:
The speedpack is a 6 rows system, consisting of:

1 Packer
2 Tray denester
3 Curve conveyor
4 Tray conveyor

Optional it is possible to execute the speedpack with an infeed extension (5).

Process:
Eggs are entering the speedpack on the packer that takes care of the pointed end downward setting, assembly of eggs into a fixed pattern and the transfer of those eggs to the tray on the tray transport conveyor.
The tray denester supplies the empty trays. The curve conveyor transports these empty trays from the tray denester towards the tray conveyor. On this conveyor the trays receive the eggs after which the full trays are transferred to the optional outfeed conveyor or the optional tray stacker.

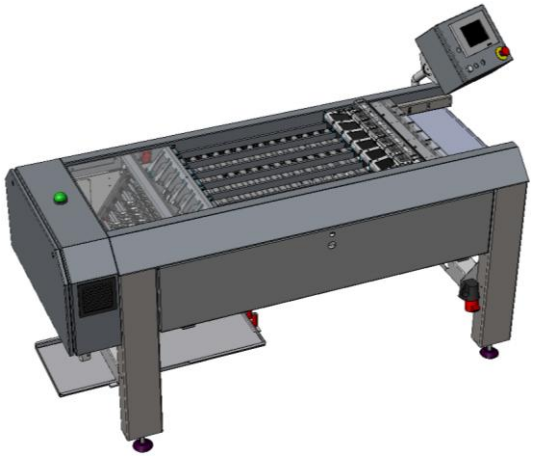
Safety:
The security of the system is created through a balance between safety and workability: An optimal workable situation is created for the operating personnel but safety was kept in mind.
Dangerous movements of the system are mostly protected with protective covers or safety doors, but there are exceptions. On a lot of places in the system it is possible to sustain injuries. The system is not completely secured with protective covers and makes unexpected starts and stops. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the system and do not touch it when the system is running production.
Read the safety instruction of the units in the chapter unit descriptions.

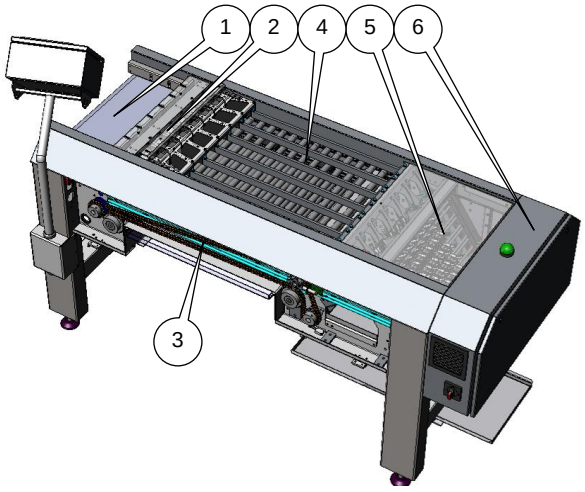
See alongside pictures for position of the emergency stop (10) and power switch (11).

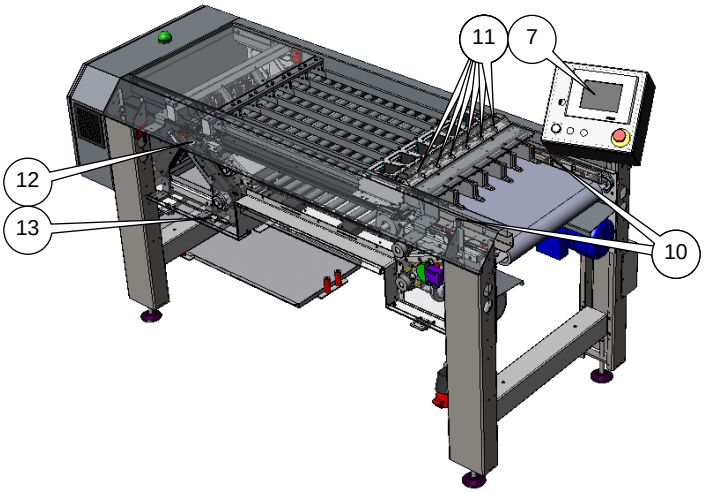
	CAUTION! Do not enter objects or body parts into the Speedpack when it is running production.
	ATTENTION! Do not enter objects or body parts into the Speedpack when it is running production.

UNIT DESCRIPTION

PACKER







Use:
The Packer is designed to receive a random supply of eggs and assemble these eggs into a row of 6 eggs and place them with the pointed end downwards into a tray.

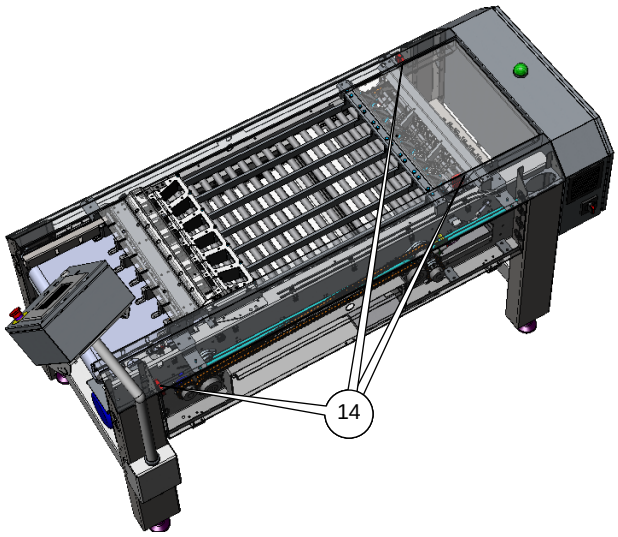
Construction:
The packer consists of:

1 Infeed conveyor
2 Infeed gate
3 Main drive
4 Roller track
5 Gripper transport

Attached to the packer are:

6 Electrical cabinet
7 Operating panel

Process:
Eggs are entering the packer on the infeed conveyor where the eggs may be graded. On this belt oversized-, misshapen-, cracked- or dirty eggs should be manually removed.
A start/stop delay sensor (10) above the infeed conveyor prevents accumulation of eggs on the infeed conveyor.
The eggs run into the infeed gates where they are detected (11). When all gates have detected an egg, the roller track moves one step forwards receiving the eggs from the gates in between 2 roller shafts. Because of the rotating movement of the roller shafts, during each step forwards, the eggs move with their pointed ends more towards the egg guides.
At the end of the roller track (roller track gripper transport transfer position), the pointed ends of the eggs are touching guide flaps, which results in the round ends of the eggs gliding downwards towards the open grippers of the gripper transport.
In between the grippers a cushion flap prevents damaging eggs while they are gliding into the grippers. A double egg in grippers sensor (12) stops the downward movement of the gripper transport when it detects an egg to prevent damaging the egg and contaminating the gripper transport. The grippers are closing around the eggs during the downward movement towards the tray conveyor where they open again to drop the eggs into the tray.
An egg in grippers sensor (13) starts the tray conveyor when it detects eggs in the grippers.
When eggs unintentionally remain in the grippers, ejector pens push them out before the grippers move up to receive a next row of eggs.



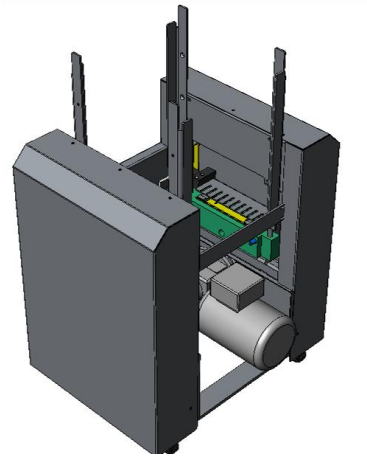
Safety:
The packer is not completely secured with protective covers or safety doors. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the packer and do not touch it when it is running production.
Pay special attention to:
- The infeed conveyor.
- The roller track.
- The bottom side of the packer.

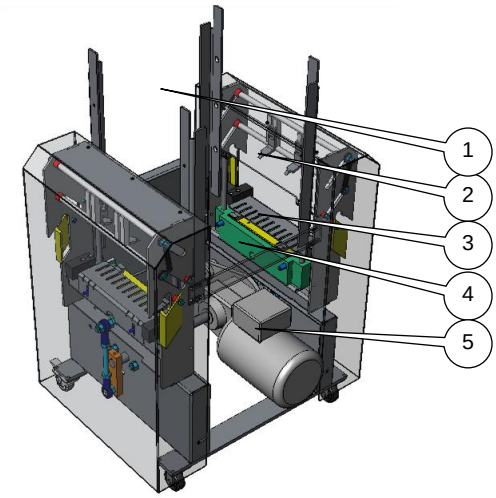
Never touch or come near these parts of the packer when it is running production.

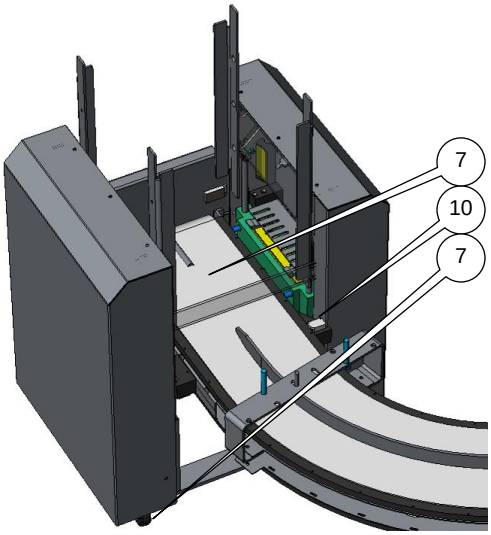
The cover above the gripper transport (transfer position of eggs from roller track to grippers) and both side covers have safety switches (14). Opening one of these covers stops the packer immediately.

	CAUTION! Do not enter objects or body parts into the packer when it is running production.
	ATTENTION! Do not enter objects or body parts into the packer when it is running production.

TRAY DENESTER







Use:
The tray denester separates a single 30-cell tray from a stack of trays and drops this tray on the curve conveyor.

Construction:
The 30-cell tray denester consists of:

1 Bunker
2 Top grippers
3 Lower grippers
4 Denester blocks
5 Drive mechanism
6 Mobile frame

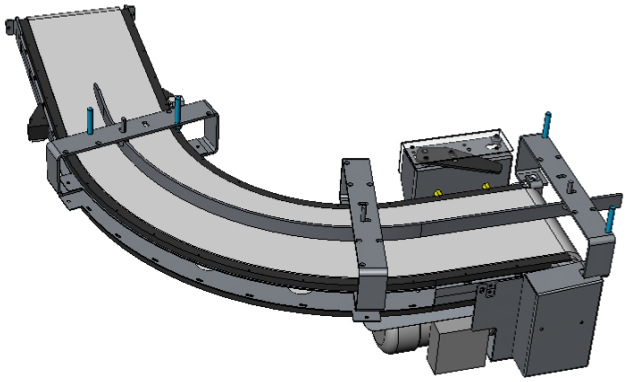
The tray denester has a mobile frame and is positioned above the curve conveyor (7).

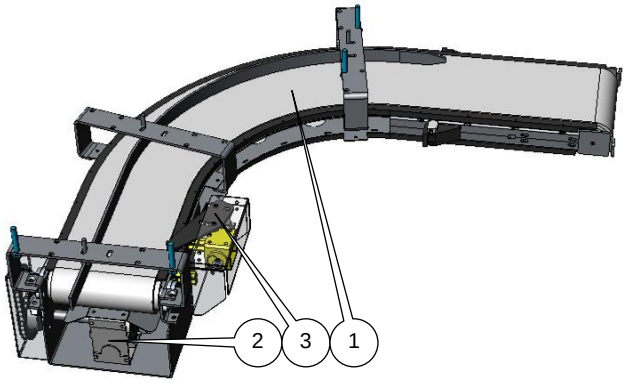
Process:
Trays are manually supplied into the bunker when the machine is stopped and rest on the top grippers. When the start denester sensor (10), positioned at the exit of the denester on the curve conveyor, is OFF, the lower grippers remove 1 tray from the bottom of the stack of trays and drop this tray onto the curve conveyor, which transports the trays towards the tray conveyor.

Safety:
The denester is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the denester and do not touch it when it is running production. Only place new trays when the machine is stopped. The lower grippers make unexpected fast and powerful movements. Never touch or come near this part when the packer is running production.

	CAUTION! Do not enter objects or body parts into the denester when it is running production. Keep distant to the lower grippers! These make unexpected fast and powerful movements!
	CAUTION! Only refill the bunker with trays when the system is stopped!
	ATTENTION! Do not enter objects or body parts into the denester when it is running production.

CURVE CONVEYOR





Use:
The curve conveyor receives trays from the denester and transports these trays towards the tray conveyor.

Construction:
The curve conveyor consists of:

1 Curve belt
2 Drive mechanism
3 Stopper mechanism

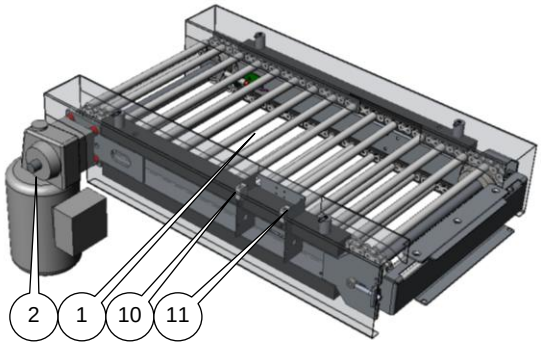
The curve conveyor is positioned underneath the packer.

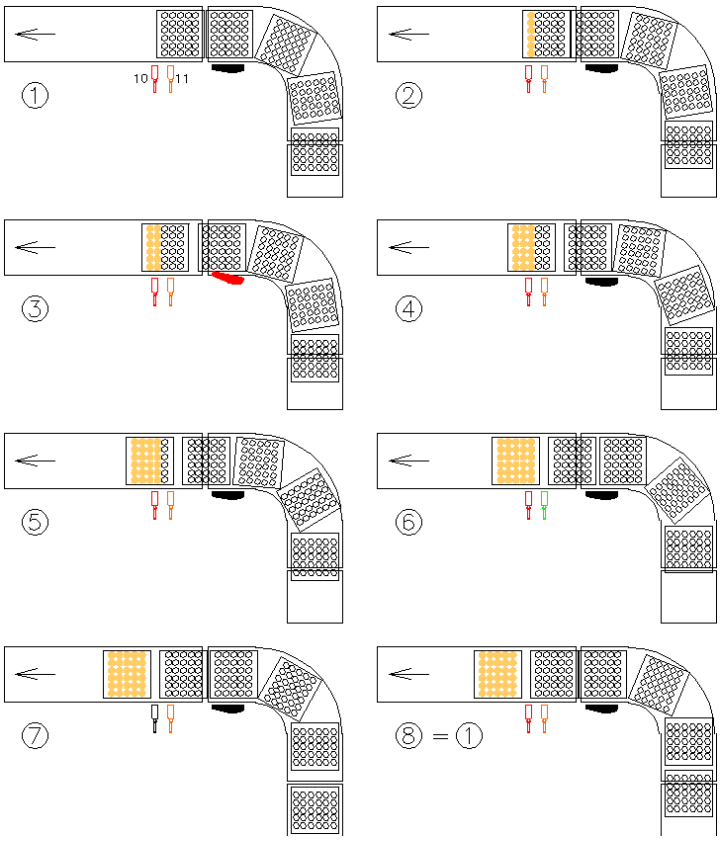
Process:
Trays are supplied by the tray denester and are transported towards the tray conveyor. At the end of the curve conveyor a stopper stops the supplied trays. On request of the tray conveyor the stopper releases a tray. This way a space is created between the trays on the tray conveyor.

Safety:
The curve conveyor is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the curve conveyor and do not touch it when it is running production. Pay special attention to the belt. Never touch the belt when the conveyor it is running production.

	CAUTION! Do not enter objects or body parts into the curve conveyor when it is running production.
	ATTENTION! Do not enter objects or body parts into the curve conveyor when it is running production.

TRAY CONVEYOR





Use:
The tray conveyor receives empty trays from the curve conveyor and eggs from the packer. It transports the empty trays towards the position underneath the gripper transport where it receives a row of eggs, and full trays towards the position where they are removed (automatically).

Construction:
The tray conveyor consists of:
1 Roller conveyor
2 Drive mechanism
The tray conveyor is positioned underneath the packer.

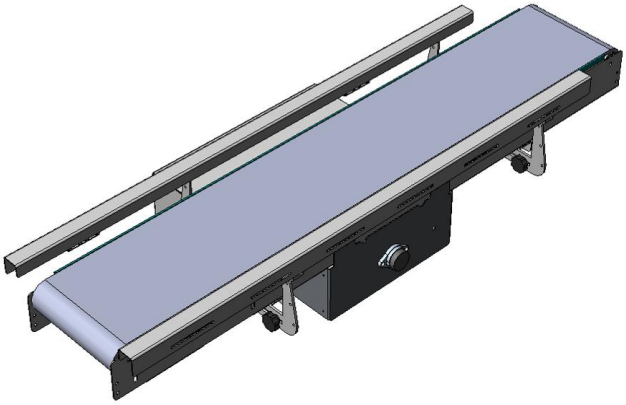
Process:
Trays are supplied by the curve conveyor, which continuously runs. The tray conveyor runs start/stop, making steps according to the following steps:
1. The 1st tray on the tray conveyor reaches the start egg transfer sensor (10).
2. When eggs are present in the grippers, during a step of the tray conveyor and the gripper transport, the 1st row of eggs are dropped in the tray.
3. After dropping the 2nd row of eggs into the tray, the stopper of the curve conveyor stops the next tray on the curve conveyor to create a space between the trays.
4. The stopper moves out again, so the next tray enters the tray conveyor, the 3rd row of eggs is dropped into the tray.
5. The 4th row of eggs is dropped in the tray.
6. While dropping the 5th row of eggs into the tray, the start next tray sensor (11) no longer detects the 1st tray.
7. The tray conveyor makes a longer step to move the 2nd tray towards the correct position for receiving the 1st row of eggs.
8. The 2nd tray reaches the start egg transfer sensor (10).

At the end of the tray conveyor the full trays are removed (automatically).

Safety:
The tray conveyor is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the tray conveyor and do not touch it when it is running production.
Pay special attention to the roller conveyor; never touch it when the tray conveyor is running production.

	CAUTION! Do not enter objects or body parts into the tray conveyor when it is running production.
	ATTENTION! Do not enter objects or body parts into the tray conveyor when it is running production.

OPTIONAL OUTFEED CONVEYOR

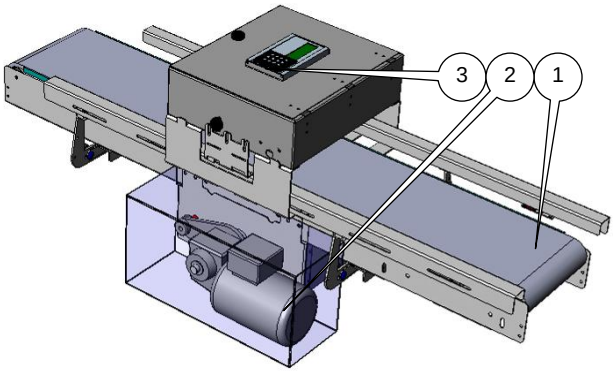


Use:
The optional outfeed conveyor receives trays from the packer.
It is possible to position an Ovo-printer above this conveyor for marking the eggs.

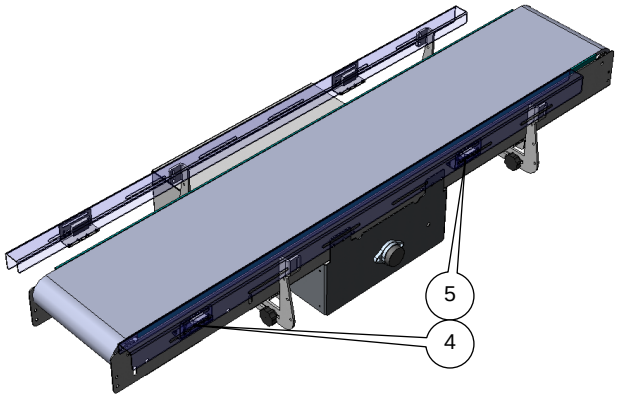
Construction:
The outfeed conveyor consists of:

1 Belt
2 Drive mechanism
3 Optional printer

The outfeed conveyor is positioned downstream of the packer.



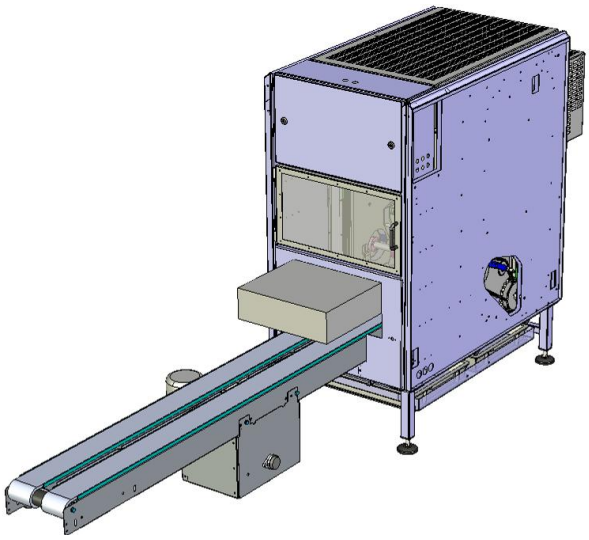
Process:
Trays are supplied by the tray conveyor.
The outfeed conveyor runs continuously. A sensor (4) near the end of the conveyor stops the belt when it detects a tray. A sensor (5) near the entrance of the conveyor stops the upstream packer when it detects a tray while the belt is not running.
When a printer is attached to the outfeed conveyor it will mark the eggs when a tray with eggs passes this printer.

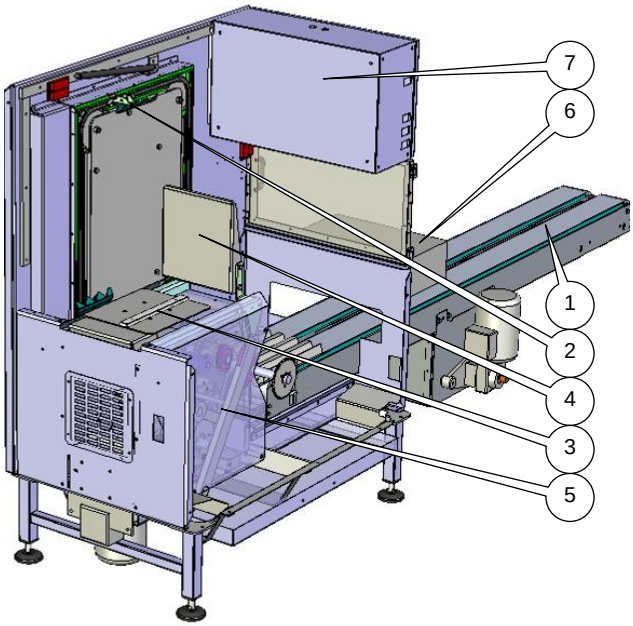


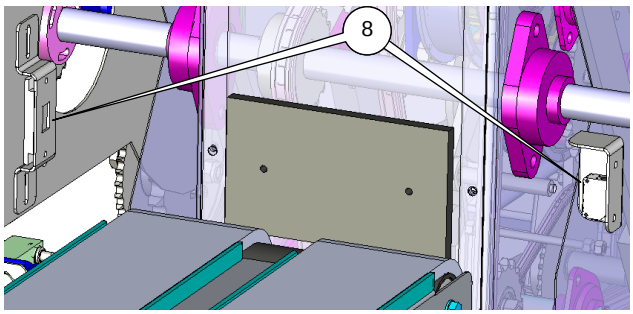
Safety:
The outfeed conveyor is not secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the outfeed conveyor and do not touch it when it is running production. Pay special attention to the belt. Never touch the belt when the conveyor it is running production.

	CAUTION! Do not enter objects or body parts into the outfeed conveyor when it is running production.
	ATTENTION! Do not enter objects or body parts into the outfeed conveyor when it is running production.

OPTIONAL AUTOMATIC TRAY STACKER





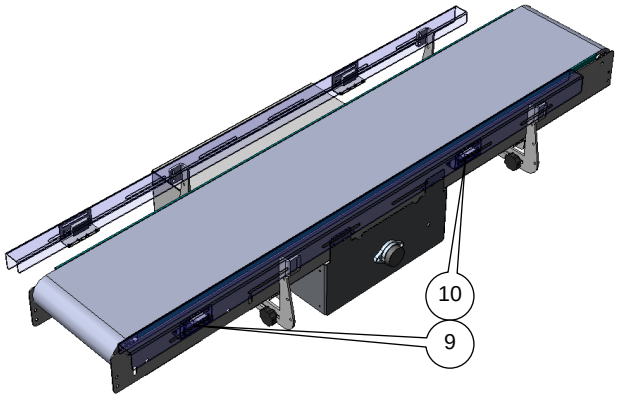


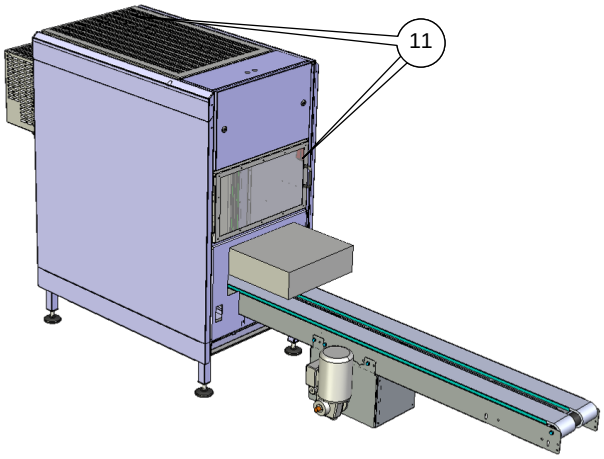
Use:
The optional automatic tray stacker receives full 30 cell trays from the packer and automatically stacks those trays. It is possible to position an Ovo-printer above the infeed conveyor for marking the eggs.

Construction:
The automatic tray stacker consists of:

1 Infeed conveyor
2 Transfer lift
3 Stacker plate
4 Pusher
5 Drive mechanism
6 Optional printer
7 Electrical cabinet

Process:
Trays are supplied by the tray conveyor on the infeed conveyor. At the end of this infeed conveyor, the trays are detected by a sensor (8) which starts the movements of the tray stacker. The tray stacker makes one complete cycle and stops again. During this cycle, the transfer lift lifts the tray from the belt. When the next tray arrives at the sensor, the next cycle starts.
During the cycles the trays are transported vertical up, horizontal forwards and vertical down where it is placed on the stacker plate. During each cycle this plate turns; 90° during one cycle and 90° back during the next cycle. The 1st tray is placed on this plate, it turns 90º. After receiving the 2nd tray it turns back 90º. This sequence is continued for 6 cycles. During the 6th cycle the pusher moves forwards to push the stack (with 6 trays) on the downstream buffer conveyor. When the stack is removed it moves backwards again and the 1st tray of the next stack is placed on the plate.





The infeed conveyor runs continuously. A sensor (9) near the end of the conveyor stops the belt when it detects a 2nd tray when the 1st tray is still present at the lever (8). A sensor (10) near the entrance of the conveyor stops the upstream packer when it detects a tray while the belt is not running.

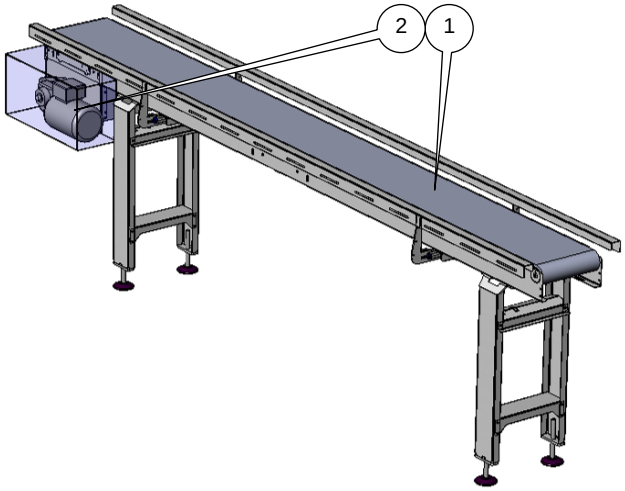
When a printer is attached to the infeed conveyor it will mark the eggs when a tray with eggs passes this printer.

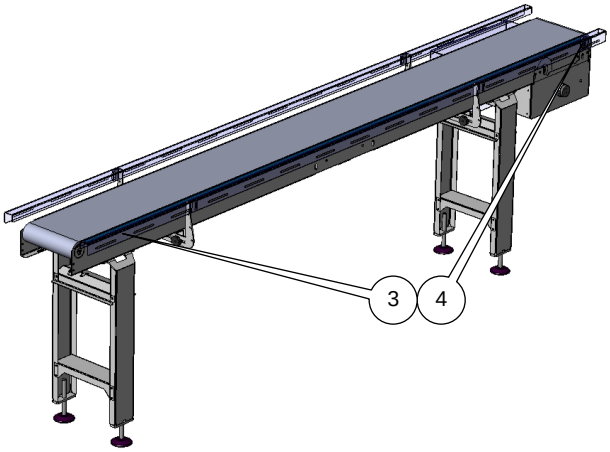
Safety:
The optional automatic tray stacker is equipped with protective covers and safety doors. The entry for the trays and the exit of the stacks is protected by a cover. The infeed conveyor is not secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the infeed conveyor and do not touch it when it is running production. Pay special attention to the belt. Never touch the belt when the conveyor it is running production.

The cover above the entry and the cover above the exit of the tray stacker have safety switches (11). Opening one of these covers stops the tray stacker immediately.

	CAUTION! Do not enter objects or body parts into the infeed conveyor and the entry or the exit of the automatic tray stacker when the system is running production. Keep distant to the tray stacker! It makes unexpected fast and powerful movements!
	ATTENTION! Do not enter objects or body parts into the infeed conveyor and the entry or exit of the automatic tray stacker when the system is running production.

OPTIONAL BUFFER CONVEYOR





Use:
The optional buffer conveyor receives stacks with trays from the tray stacker and buffers these stacks or transfers them towards the downstream transport (for example pallet loader).

Construction:
The buffer conveyor consists of:

1 Belt
2 Drive mechanism

The buffer conveyor is positioned downstream of the tray stacker.

Process:
Stack with trays are supplied by the tray stacker. As long as stacks of trays are transferred to a downstream system the buffer conveyor runs continuously. When the downstream system cannot receive stacks, the buffer conveyor stops and starts to buffer the stacks.

Process buffering:
As soon as the sensor (3) at the entrance of the belt detects a stack of trays the belt starts to run until the stack has passed this sensor. Then the belt stops again. This sequence is repeated until the sensor (4) at the end of the belt detects a stack, the belt stops. The tray stacker pushes one more stack of trays on the entrance of the belt. When the next stack is ready for unloading the tray stacker also stops. After removal of stack from the buffer conveyor, the buffer conveyor starts again.

Safety:
The buffer conveyor is not secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the buffer conveyor and do not touch it when it is running production. Pay special attention to the belt. Never touch the belt when the conveyor it is running production.

	CAUTION! Do not enter objects or body parts into the buffer conveyor when it is running production.
	ATTENTION! Do not enter objects or body parts into the buffer conveyor when it is running production.

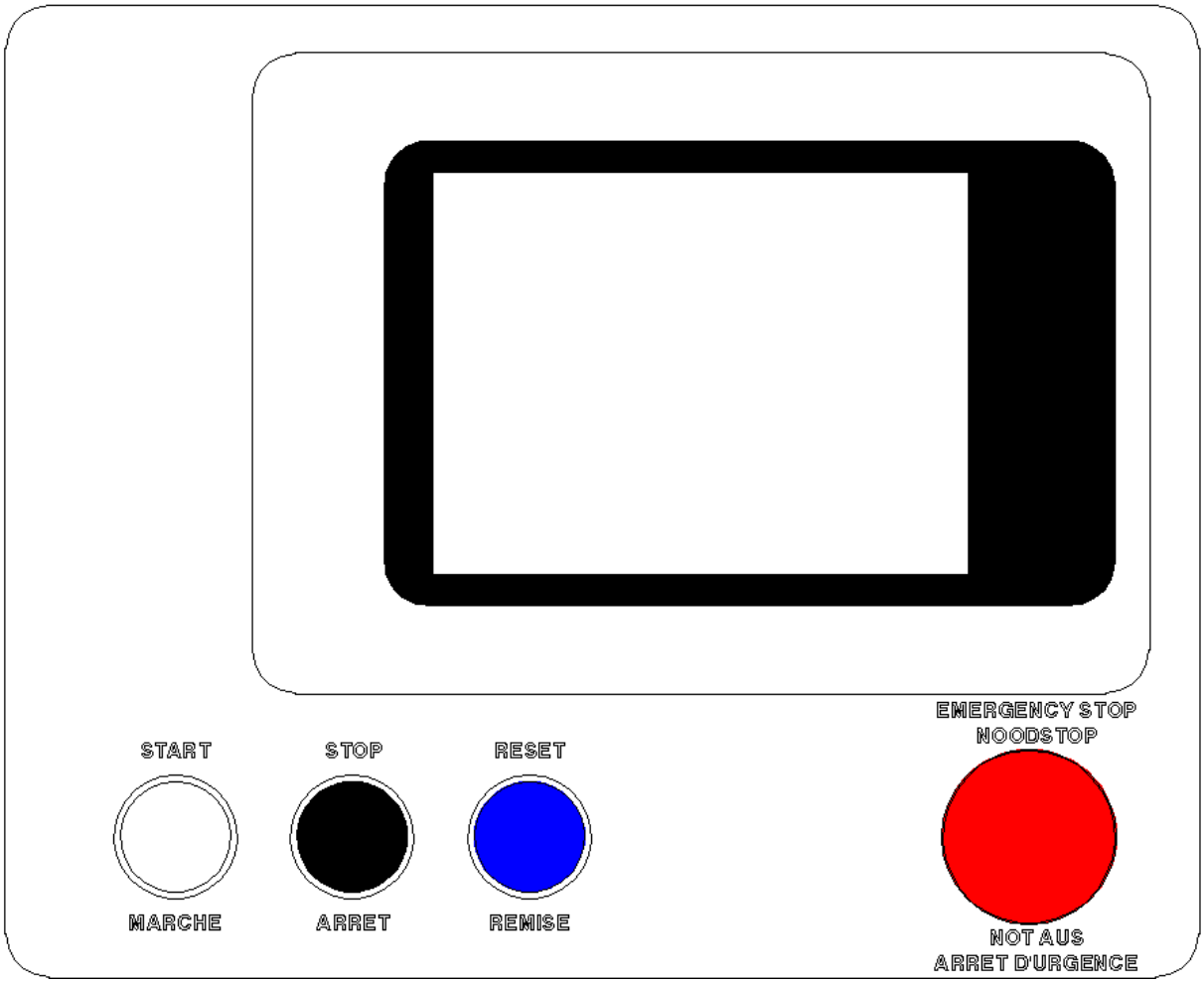
3. OPERATION

SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read the chapters Introduction and Safety.

EXPLANATION OF THE OPERATION

OPERATING PANEL



In the operating panel the touchpanel with PLC is situated. The PLC controls the speedpack. The touchpanel shows information about the status of the system. By touching buttons on the screen, the speedpack is controllable.

	DANGER! Although a lot of safety measures are built into the control of the system, Prinzen cannot guarantee that no dangerous situations will occur. Before you start the system, make sure no persons are in danger.
	DANGER! By working on a higher operating level, you have more possibilities to control the system manually. Before starting to move parts of the system, you have to assure yourself no other persons are in danger. Make sure nobody is around the part you intend to move.
	ATTENTION! By working on a higher operating level, you have more possibilities to control the system manually. When you move parts manually, it may be possible that parts will collide, resulting in damage of the system.

ATTENTION!
It is not necessary to press real hard on the Touch Panel. We advise against doing this because it may damage the Touch Panel. It is forbidden to press on the Touch Panel with (sharp) objects because this may also damage the Touch Panel.

Emergency button:
After pushing the red button, the complete system stops. Only use this button in case of emergencies.

Start:
By pressing the start button, the system starts to run. The light inside the button turns ON.
When you start to move parts of the system manual (see the manual screen), the light inside the button starts flashing.

Stop:
By touching the stop button, you will stop the system. The system stops after finishing certain internal controlling cycles. Thus it may take some time before the system is completely stopped. This is the normal procedure to stop the system.

Reset:
After a breakdown, first the breakdown needs to be solved. During a breakdown, the light inside the reset button turns ON and the buzzer starts beeping. By pressing the reset button the first time the buzzer stops beeping. After solving the breakdown and pressing the reset button again, the controller verifies if all breakdowns are solved. When this is the case, the light inside the reset button turns OFF. Now it is possible to start the system by pressing the start button again.
After pressing an emergency button, one of the reset buttons on one of the systems connected to the speedpack must be pressed before it is possible to start the system again.

INDICATOR LIGHT

Above the electrical cabinet an indicator light indicates the status of the speedpack:

Green:	Speedpack is running.
Red:	Breakdown.
Yellow:	System is in the manual mode.

BUZZER

Underneath the operating panel a buzzer is positioned to attract the operator's attention.
After starting the system, the buzzer beeps once.
During a breakdown the buzzer starts beeping. After pressing the reset button the buzzer stops.

TRAY STACKER BUTTONS

After opening a safety door of the tray stacker it is possible to start the tray stacker again by closing the door, pressing the local reset button and subsequently the local start button.

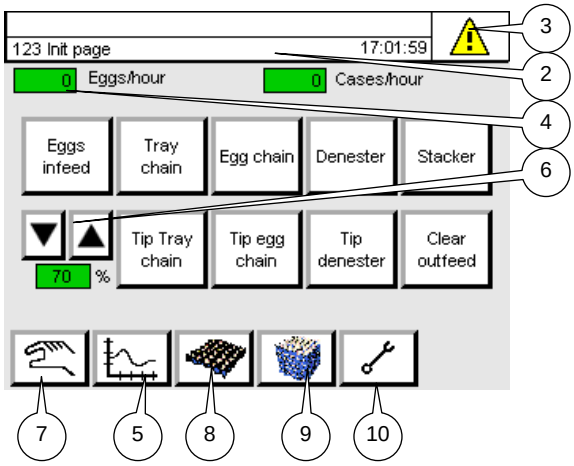
START-UP SCREEN

After switching on the speedpack with the main switch the start-up screen appears.

After touching this (1) button the production screen appears.

KEYPAD

After touching yellow windows, the alongside keypad appears. Enter a correct value and confirm it with the V button.



PRODUCTION SCREEN

In the production screen the operator is able to control the speedpack. On the production screen the following information is visible:

Alarm message line (2):
On the top of the screen the alarm messages may appear when the system needs assistance. See alarm messages for possible alarms that may popup.

Alarm screen (3):
On all screens the alarm screen button is available. After touching this button you will enter the alarm screen.

Packed eggs (4):
Average amount of packed eggs per hour.

Production trend (5):
After touching this button, the production trend screen appears which gives information about the performance of the system.

Eggs Infeed:
After touching the eggs infeed button, the infeed conveyor starts to run. When the button is activated, its color changes to green.

Tray chain:
After touching the tray chain button, the curve conveyor starts to run and the tray conveyor is able to run. Now by touching the ***Tip Tray chain*** button, the tray conveyor moves 1 step forwards.

Egg chain:
After touching the egg chain button, the roller track and gripper transport are able to run. Now by touching the ***Tip Egg chain*** button the roller track and gripper transport move 1 step forwards.

Denester:
After touching the Denester button, the denester is able to run. Now by touching the ***Tip Denester*** button, 1 tray is supplied from the denester onto the curve conveyor.

Stacker:
After touching this button the optional tray stacker starts to run.

Speed setting (6):
With these arrow buttons it is possible to change the speed of the infeed conveyor. Normally these buttons are used to lower the speed when a lot of damaged or dirty eggs are entering the speedpack, which make it easier to remove bad eggs.

Clear outfeed:
In case an optional buffer conveyor is present downstream of the optional tray stacker and no further downstream systems, with this button it is possible to toggle between buffering stacks of trays or sending the stacks of trays directly to the end of the conveyor.
When the button is colored white, the conveyor is buffering.
When the button is colored blue, the conveyor immediately sends stacks of trays to the end of this conveyor.

Packer manual submenu (7):
After touching this button the manual submenu appears in which it is possible to manually control parts of the system.
This submenu is not available for the operator.

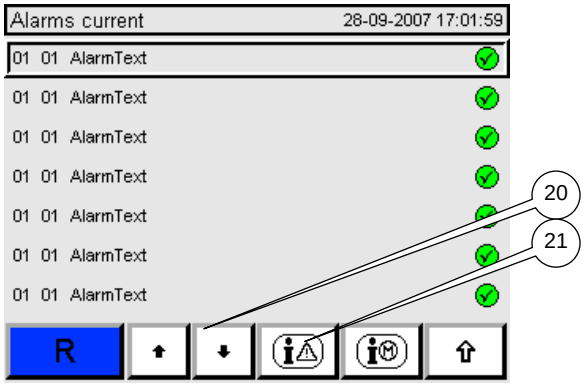
Empty speedpack (8):
This button is used to remove all eggs out of the system.
Normally all gates need to be filled with eggs before these eggs are transported towards the tray. When no more eggs are entering the system on the infeed conveyor, the system waits for eggs and the eggs on the roller track and gripper transport remain on the system.
When the empty speedpack button is touched it colors green and the eggs in the system are transported towards the trays even though no eggs are detected at the gates. The grippers remain filling trays until all eggs are removed from the speedpack. When the last tray is leaving the tray conveyor, a message appears on the display: remove the tray manually and press the reset button to return to normal operation. The empty speedpack button colors white again.

Empty tray stacker (9):
This button is used to remove all stacks out of the optional tray stacker.
Normally a stack of 6 trays is needed before the stacker pushes it out. When no trays are entering the stacker, it waits for trays and the trays in the transfer lift and on the stacker plate remain in the tray stacker.
When the empty tray stacker button is touched, it colors green and for 3 seconds the tray stacker waits for trays. When no more trays are entering the tray stacker, the remaining trays in the transfer lift are transported towards the stacker plate and are pushed out even though no trays are detected at the infeed of the tray stacker.
When all trays are removed, the transfer lift makes 4 steps without trays and stops and the button color changes into white.

TIP!
The last trays leaving the system may be only partially filled! Remove these trays manually from the tray conveyor.

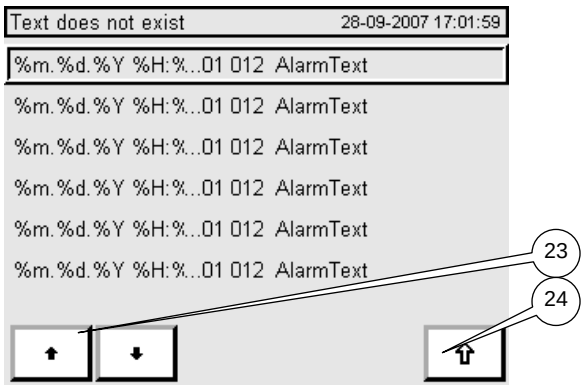
TIP!
The reset button must be pressed before it is possible to start the speedpack again!

Service submenu (10):
After touching this button the service submenu appears. In this menu the operator is able to change a number of settings using submenus. Not all submenus are available for the operator.



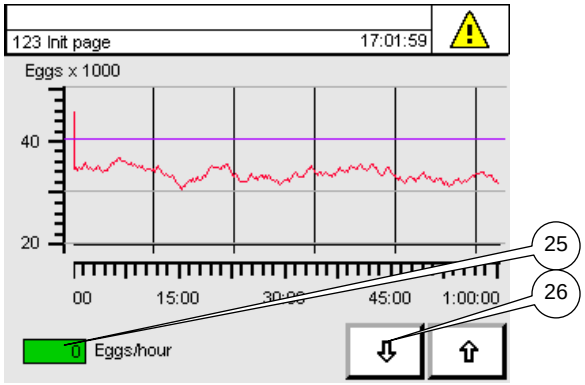
ALARM SCREEN

The Alarms current screen shows all present alarms from the system including its alarm code. Use this alarm code to find this alarm and its corresponding cause and action to solve the error in the trouble shooting guide.
By touching the up- or down arrows (20) it is possible to scroll through the alarm list.
An active alarm is colored red.
After touching the alarm history button (21) the alarm history screen appears.



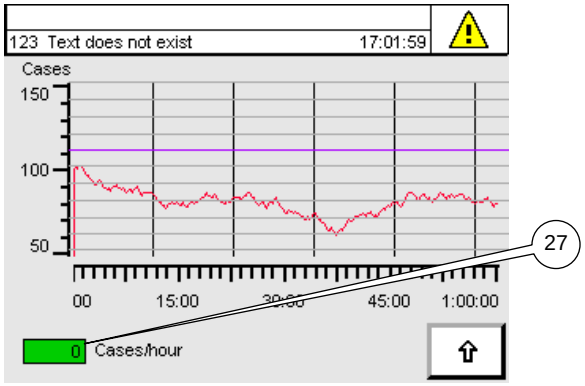
Submenu Alarm history:
The Alarm history screen shows the history of all alarms from the speedpack.
By touching the up- or down arrows (23) it is possible to scroll through the alarm list.

Previous (24):
On most of the screens in the right bottom corner this up-arrow button is present. After touching this button the previous screen appears.



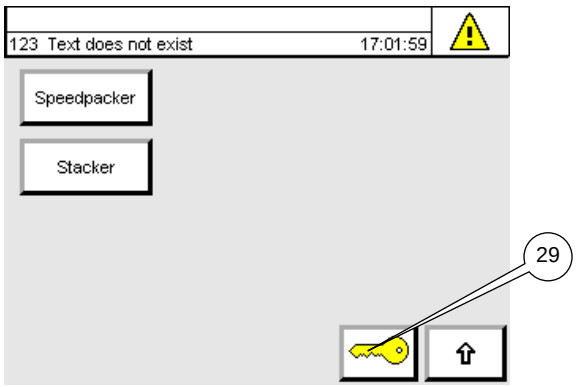
PRODUCTION TREND EGGS

In this screen a graphic of the amount of eggs (x1000) that are packed in the past hour is displayed.
The average amount of eggs that have been packed is displayed in the left bottom corner (25).
After touching the down-arrow button (26) the production trend cases screen appears.



PRODUCTION TREND CASES

In this screen a graphic of the amount of cases that are packed in the past hour is displayed (1 Case = 2 stacks of 6 trays = 360 eggs).
The average amount of cases that have been packed is displayed in the left bottom corner (27).

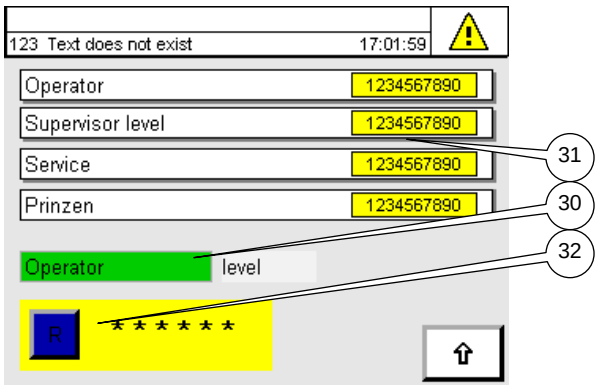


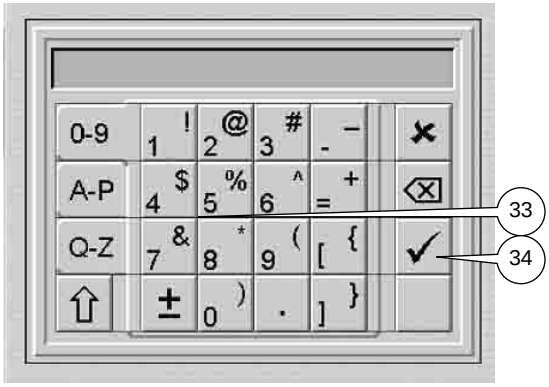
MANUAL MENU

Password screen (29):
After touching this button the password screen appears in which it is possible to change the operating level of the system.

After touching the Speedpacker button, the speedpack manual screen appears. After touching the Stacker button, the tray stacker manual screen appears. Both screens are not available for the operator.
In those screens it is possible to control parts of the speedpack or tray stacker manually. With the manual screens it is also possible to verify correct functioning of sensors and motors. These are depicted in these screens. Whenever a sensor detects something or a motor is activated, it colors yellow or green.

	DANGER! Before starting to move parts of the system, you have to assure yourself no other persons are in danger. Make sure nobody is around the part you intend to move.
	ATTENTION! When you move parts manually, it may be possible that parts will collide, resulting in damage of the system.
	ATTENTION! Using the manual buttons may result in damaging trays, eggs and machine parts. We advise you to remove all trays from the system before starting to use these buttons.
	ATTENTION! The manual screen should only be used by advanced users of the system like Prinzen engineers for testing the system.





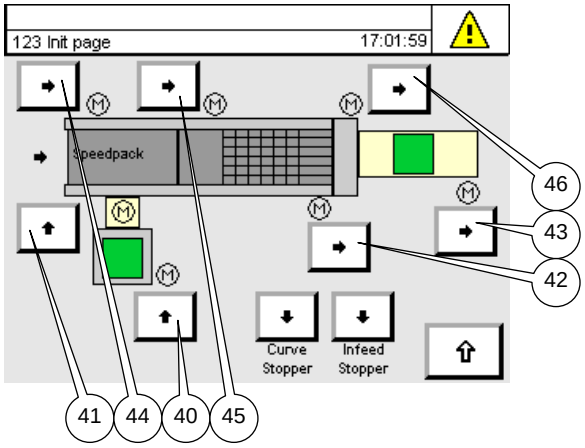
PASSWORD SCREEN

Here you can enter your password. Depending on the operating level you get the possibility to change settings of the system and/or move parts of the system manually. Passwords will be handed over to certain dedicated persons within your company.

The level window (30) shows the current operating level. For the lower operating levels the passwords are also visible. After touching a visible password (31), a keypad pops up in which it is possible to change the password.

After touching the password window (32) a keypad appears (33). After entering the correct password and confirming it with the V button (34) the operating level changes.

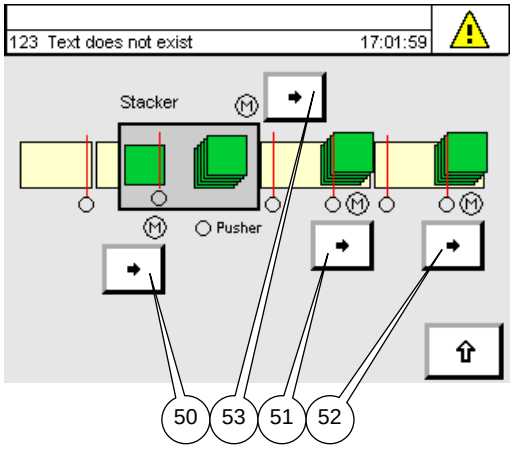
	DANGER! By working on a higher operating level, you have more possibilities to control the system manually. Before starting to move parts of the system, you have to assure yourself no other persons are in danger. Make sure nobody is around the part you intend to move.
	ATTENTION! By working on a higher operating level, you have more possibilities to control the system manually. When you move parts manually, it may be possible that parts will collide, resulting in damage of the system.
	ATTENTION! By working on a higher operating level, you have more possibilities to control the system manually. Using the manual buttons may result in damaging trays, eggs and machine parts. We advise you to remove all trays from the system before starting to use these buttons.
	ATTENTION! By working on a higher operating level, you have the possibilities to change parameter settings. This may result in malfunctioning and even damage of the system.
	ATTENTION! The manual screens should only be used by advanced users of the system like Prinzen engineers for testing the system.



SPEEDPACK MANUAL SCREEN

Tray denester (40):
Touching this arrow button shortly activates the denester. When touching it for a longer time, the denester makes one complete cycle. When trays are present, one tray is placed on the curve conveyor underneath the denester.
Curve conveyor (41):
After touching this arrow button, the curve conveyor starts to run as long as this button is touched.
Tray conveyor (42):
Touching this arrow button shortly activates the tray conveyor. When touching it for a longer time, the tray conveyor makes one step forwards.
Optional outfeed conveyor (43):
After touching this arrow button, the optional outfeed conveyor starts to run as long as the button is touched.
Optional (extended) infeed conveyor (44):
After touching this arrow button, the optional infeed conveyor starts to run as long as this button is touched.
Infeed conveyor (45):
After touching this arrow button, the infeed conveyor starts to run as long as this button is touched.
Roller track gripper transport (46):
Touching this arrow button shortly activates the roller track and gripper transport. When touching it for a longer time, the roller track and the gripper transport make one complete step forwards.

Curve stopper:
With this button it is possible to control the 1st tray stopper. As long as it is touched it remains in its down position. This stopper prevents accumulation of trays in the curve of the curve conveyor.
Infeed stopper:
With this button it is possible to control the 2nd tray stopper. As long as it is touched it remains in its down position. This stopper is used to create a space between the trays on the tray conveyor.



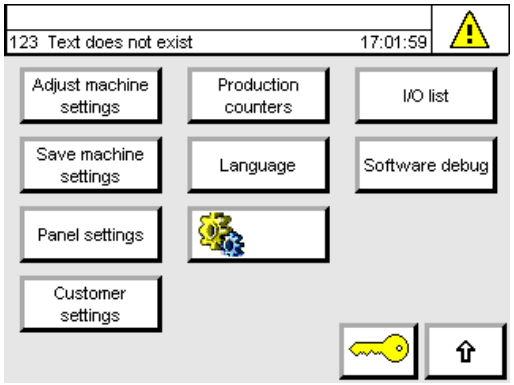
TRAY STACKER MANUAL SCREEN

Infeed conveyor tray stacker (50):
The infeed conveyor tray stacker transfers trays from the speedpack towards the tray stacker.
After touching this arrow button, the infeed conveyor starts to run as long as the button is touched.

1st buffer conveyor (51):
After touching this arrow button, the optional 1st buffer conveyor starts to run as long as the button is touched.

2nd buffer conveyor (52):
After touching this arrow button, the optional 2nd buffer conveyor starts to run as long as the button is touched.

Tray stacker (53):
After touching this arrow button, the tray stacker makes one complete step. When trays are present, the trays are transferred one step forwards from the infeed conveyor towards the stack of trays.



	ATTENTION! Changing parameters may result in malfunctioning and even damage of the system.
	ATTENTION! The service screens should only be used by advanced users of the system like Prinzen engineers for testing the system.

	CAUTION! Be sure not to enter limbs between rotating parts when cleaning or maintaining machine parts. We strongly advise you NOT to clean or maintain the machine while it is running.
	ATTENTION! Remove all eggs and trays from the system before touching the maintenance button. Otherwise touching this button results in damaged eggs, trays and machine parts.

SERVICE MENU

In this menu the user of the system is able to change a number of settings using submenus. Not all submenus are available for the operator or the supervisor.

Adjust machine settings:
After touching this button the machine settings menu appears in which it is possible to set the system into a simulation mode, change a few timers that control the system and enter the correct configuration of the system. These submenus are not available for the operator and the supervisor.

Save machine settings:
With this button you can enter the save machine settings submenu. In this menu it is possible to save the machine settings. This screen is not available for the operator and the supervisor.

Panel settings:
After touching this button you will enter the panel settings submenu in which it is possible to change touchpanel settings. This submenu is not available for the operator.

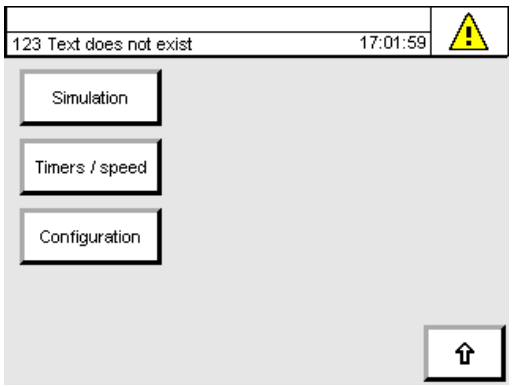
Customer settings:
After touching this button, the customer settings screen appears in which it is possible to change some timers and settings that control the system. This submenu is not available for the operator.

Production counters:
After touching this button the production counters screen appears in which the amount of processed eggs is shown.

Language:
After touching this button the language screen appears. In this screen it is possible to select the language of the touchpanel.

Maintenance:
After touching this button, it colors yellow. Pushing the start button now, starts the speedpack movements without the supply of eggs. This functionality is not available for the operator and the supervisor. It gives the possibility to clean or lubricate certain parts of the speedpack which are normally difficult to reach. We advise you NOT to clean or lubricate machine parts while they are running, but let it run for a short distance, clean or lubricate the parts while they are stopped, and run the machine again for a short distance. This way the machine is cleaned or lubricated step by step until it is completely cleaned or lubricated. Before using this button, remove all eggs and trays from the system.

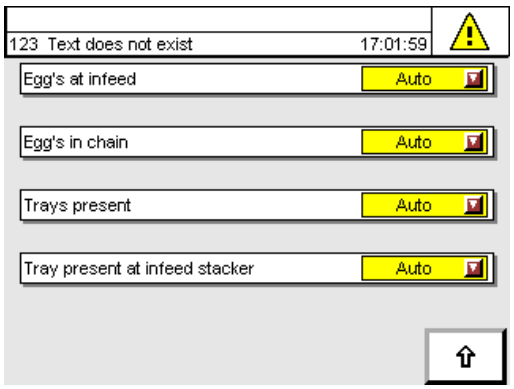
I/O list:
After touching this button the I/O screen appears. In this screen it is possible to view the status of all the inputs (sensors) and outputs (motors).
Software debug:
After touching this button the software debug screen appears. This screen shows information about the status of the software.



MACHINE SETTINGS

Simulation:
After touching the Simulation button, the simulation screen appears in which it is possible to set (parts of) the system in the simulation mode, making it is possible run the system without eggs and trays.
Timers/speed:
After touching the Timers button, the timers screen appears in which it is possible change the timers that control the system.
Configuration:
After touching the Configuration button, the configuration screen appears in which it is possible to enter the correct configuration of the system. Normally this is done in the factory by Prinzen engineers.

	ATTENTION! Changing parameter settings may result in malfunctioning and even damage of the system.
	TIP! Normally the parameters in these screens are factory set and do not need to be changed.



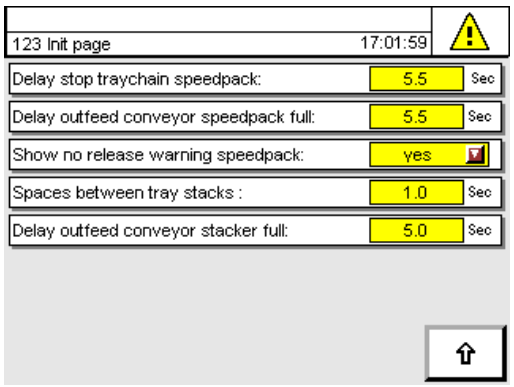
SIMULATION SCREEN

Egg's at infeed:
When egg's at infeed is set to Auto, the roller track and gripper transport will only make a step when eggs are detected in all gates.
When egg's at infeed is set to Simulation, when the system is started, the roller track and gripper transport will continuously run regardless of the presence of eggs in the gates.

Eggs in chain:
When egg's in chain is set to Auto, the roller track and gripper transport will only make a step when eggs are detected in the grippers at the egg transfer position.
When egg's in chain is set to Simulation, when the system is started, the roller track and gripper transport will continuously run regardless of the presence of eggs in the grippers.

Tray present:
When tray present is set to Auto, the roller track and gripper transport will only make a step when a tray is detected at the egg transfer position.
When tray present is set to Simulation, when the system is started, the roller track and gripper transport will continuously run regardless of the presence of a tray at the egg transfer position.

Tray present at infeed stacker:
When tray present at infeed stacker is set to Auto, the optional tray stacker only makes a step when a tray is detected at infeed of the tray stacker.
When tray present at infeed stacker is set to Simulation, when the system is started, the optional tray stacker continuously runs regardless of the presence of a tray at the infeed of the tray stacker. The infeed conveyor in between the speedpack and the tray stacker does not run in the simulation mode.



TIMERS SCREEN

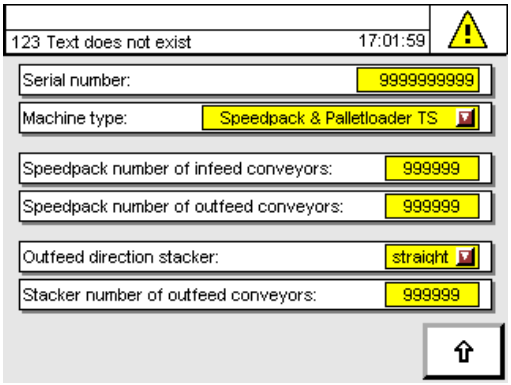
Delay stop tray chain speedpack:
This timer determines the timing for stopping the tray conveyor after detecting a tray on the downstream outfeed conveyor (stand alone system) or the infeed conveyor (tray stacker). When this timer is too short the speedpack stops and starts too often. When this timer is too long the (full) trays will collide on the downstream conveyor resulting in damaged eggs.

Delay outfeed conveyor speedpack full:
This timer is only available when the speedpack is used as a standalone system with an outfeed conveyor.
It determines the timing for stopping the speedpack after detecting a tray on the outfeed conveyor. When this timer is too short the speedpack stops and starts too often. When this timer is too long trays will collide on the outfeed conveyor resulting in damaged eggs.

Show no release warning speedpack:
When another brand of tray stacker is used instead of the Prinzen tray stacker, this stacker sends a release signal to the speedpack. When the speedpack does not receive this release signal, a message appears on the speedpack touchpanel.
Here it is possible to enable or disable the appearance of this message.
When Yes is selected, the message appears when no release signal is received.
When No is selected, the message will not appear.

Spaces between tray stacks:
This timer determines the space between the stacks on the buffer conveyor when it is buffering stacks (no stacks to downstream system). After a stack has left the tray stacker the conveyor remains running the time as set in this parameter.

Delay outfeed conveyor stacker full:
This timer determines the timing for stopping the buffer conveyor after a stack is detected at the end of this conveyor when it is buffering stacks (no stacks to downstream system). After a stack is detected at the end of the buffer conveyor, the conveyor remains running the time as set in this parameter.
When a downstream system is present set this parameter to 0.

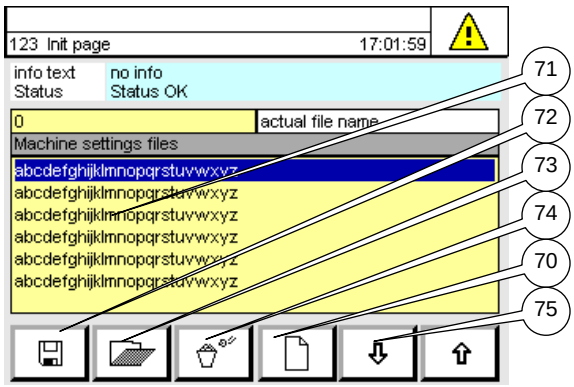


CONFIGURATION SCREEN

Because of the possibility to run the speedpack with a few optional systems, the software of the speedpack is able to control several configurations of the speedpack.
With this screen it is possible to enter the correct configuration of the system.
Normally this is done in the factory by Prinzen engineers and the user of the system should not change these parameters.

TIP!
Normally the parameters in the configuration screen are factory set.

Serial number:
Here the serial number of the speedpack is displayed.
Machine type:
Here it is possible to select the machine type, with a tray stacker, a pallet loader or both.
Speedpack number of infeed conveyors:
Here the amount of infeed conveyors of the speedpack is displayed, including the standard 1st infeed conveyor.
Speedpack number of outfeed conveyors:
Here the amount of optional outfeed conveyors is displayed. These conveyors are placed downstream of the tray conveyor and can only be present when the speedpack is used as a standalone system.
When the tray stacker is present, 0 is displayed here and it is not possible to change this.
Outfeed direction stacker:
Here the direction of the infeed conveyor to the tray stacker is displayed. There is a straight and a 90° angle infeed conveyor available.
Stacker number of outfeed conveyors:
Here the amount of optional buffer conveyors downstream of the tray stacker is displayed. These conveyors may transport stacks of trays to downstream systems not controlled by the speedpack.

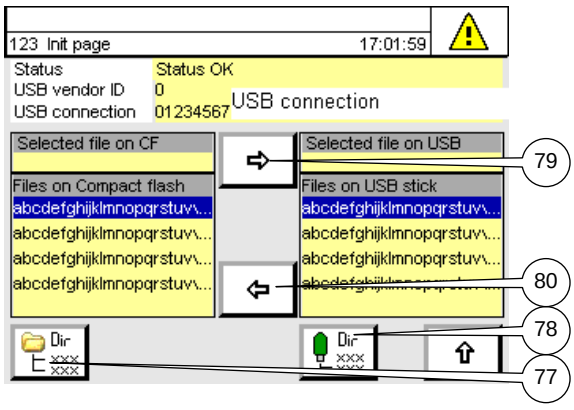


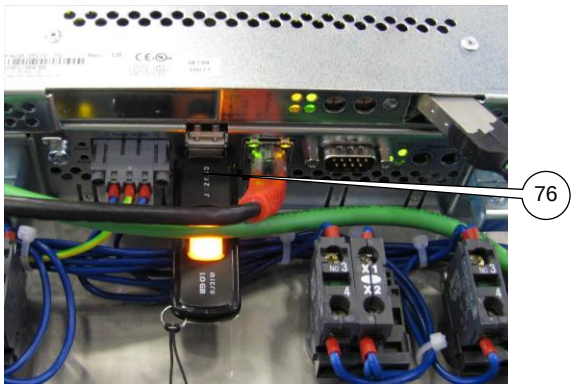
SAVE MACHINE SETTINGS

In this menu it is possible to create, save, open or delete a machine settings file.
A machine settings file is a file which contains all the machine settings.

Create (70):
After touching this button, a keypad pops up in which it is possible to enter a file name. After confirming the name with the enter button, the file is created and its name appears in the file name list (71)
Save (72):
After selecting a file name from the file name list and touching this save button, all the machine settings are stored in this file.
Open (73):
After selecting a file name from the file name list and touching this button, all machine settings of this file are read and will be used by the speedpack.
Delete (74):
After selecting a file name from the file name list and touching this button, this file is deleted.

USB (75):
After touching this button you will enter the USB stick submenu in which it is possible to load or store machine setting files.

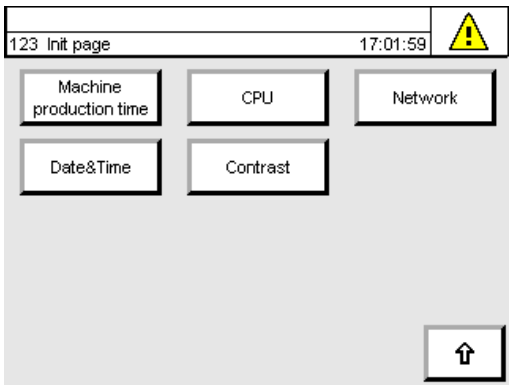




USB STICK

Inside the operating panel, on the rear side of the touchpanel, it is possible to plug in an USB stick (76). To store machine setting files on an USB stick, or to load Machine setting files from the USB stick, first plug in the USB stick.

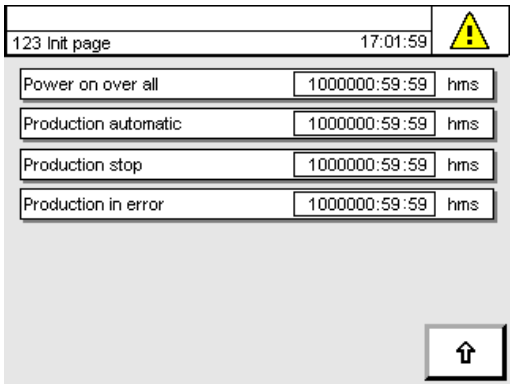
After touching the Directory button (77) on the left side of the screen, all the machine setting files of the speedpack appear in the left list.
After touching the Directory button (78) on the right side of the screen, all the machine setting files on the USB stick appear in the right list.
After selecting a file in the left list and touching the right arrow button (79), this file is stored on the USB stick.
After selecting a file in the right list and touching the left arrow button (80), this file is loaded from the USB stick and stored in the PLC. To use the settings in the file it has to be opened by using the open button (73)



PANEL SETTINGS

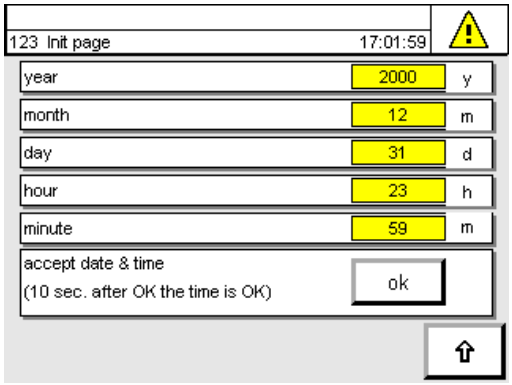
In this menu the user of the system is able to change touchpanel settings using submenus. This submenu is not available for the operator and some of the screens in this submenu are also not available for the supervisor.

Machine production times:
After touching this button the Machine production time screen appears. This screen shows the performance of the system.
Date&Time:
After touching this button the Date&Time screen appears. In this screen it is possible to set the correct date and time.
CPU:
After touching this button the CPU screen appears. This screen shows information about the status of the control system.
Contrast:
After touching this button the Contrast screen appears. In this screen it is possible to adjust the contrast, the brightness and the orientation of the display.
Network:
After touching this button the Network screen appears. In this screen it is possible to adjust the communication between the machine and (via the internet) an external computer.



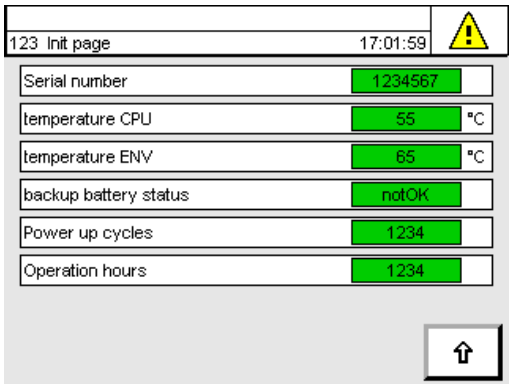
PRODUCTION TIME SCREEN

Here the performance of the system is visible.
Power on over all:
The power on over all shows the time that the system power was ON.
Production automatic:
Production automatic shows the time that the system was running production (filling trays with eggs).
Production stopped:
Machine stopped is the time that the system was not running production (stop button pressed).
Production in error:
Machine stopped is the time that the system was not running production because of a failure.



DATE&TIME SCREEN

After touching year, month, day, hour or minute a keypad appears. Enter the correct date and time and confirm this with the V button. Now touch the button “accept date & Time” to activate the correct date and time.



CPU SCREEN

This screen shows information about the status of the control system.

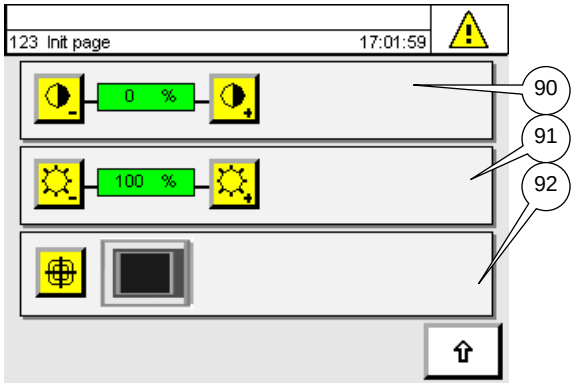
Serial number:
Here the serial number of the CPU is displayed. During contact with a Prinzen service engineer to solve a breakdown, you may be asked to pass on this serial number.

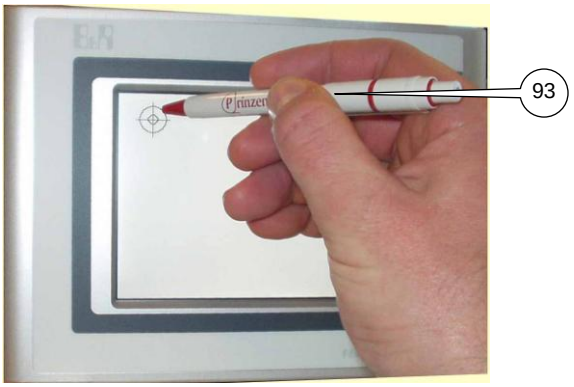
Temperature CPU/ENV:
Here the temperature of the CPU (Central Processing Unit) and its surrounding temperature is displayed.
Whenever the temperature rises too high, a message appears on the screen and the cabinet of the CPU needs to be cooled immediately.

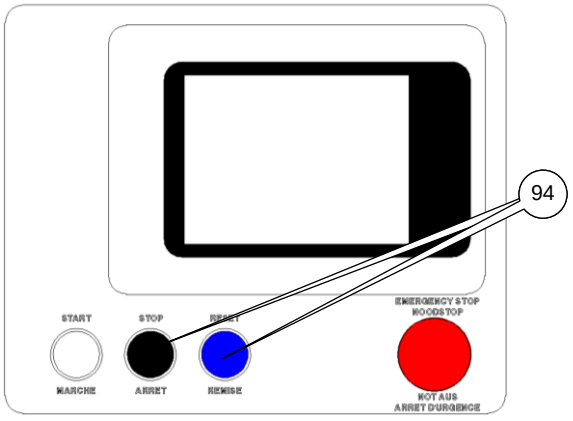
Backup battery status:
The back-up battery status shows the status of the battery. When the battery becomes exhausted, not OK appears. In that case do not power off the system and contact Prinzen for the exchange procedure of the battery.

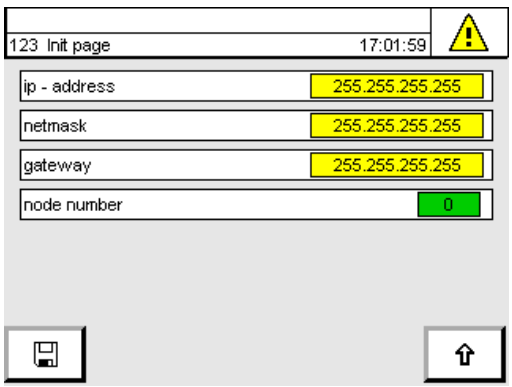
Power up cycles:
The amount of power up cycles (switching ON the system) is displayed here.

Operation hours:
The time that the system was running production (filling trays with eggs) is displayed here.









CONTRAST SCREEN

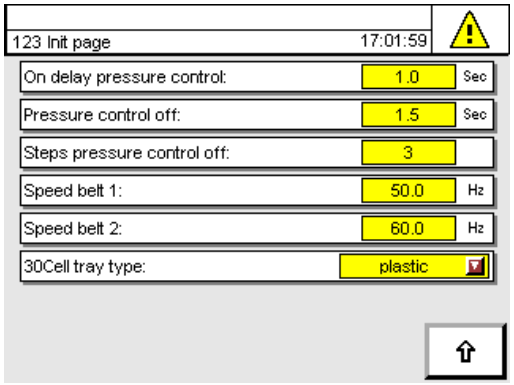
With the contrast buttons (90) it is possible to adjust the contrast of the display.
With the brightness buttons (91) it is possible to adjust the brightness of the display.
After touching the orientation button (92) you can calibrate the touchpanel part of the display. Dots appear on the screen. Touch these dots with a pointed (but not sharp!) object (93). After touching the last dot, the touchpanel part of the display is calibrated.
Another way to activate the calibration of the touchpanel is by simultaneously pressing the stop and the reset button (94) for at least 2 seconds.

ATTENTION!
It is forbidden to press on the Touch Panel with sharp objects because this may also damage the Touch Panel.

TIP!
The touchpanel is calibrated in the factory. Because of this, normally it is not necessary to calibrate the touchpanel.

NETWORK SCREEN

In this screen it is possible to enter the IP addresses to be able to communicate with an external computer via an Internet connection. Normally these addresses are entered by Prinzen engineers and are for information only. In case it is necessary to change these addresses ask your network administrator to do this.



CUSTOMER SETTINGS SCREEN

In this screen it is possible to change some settings that control the system.
The parameter values in the alongside screen are the factory settings.

On delay pressure control:
The on delay is the time between the start/stop delay sensors both detecting eggs and the stop of the egg-collecting conveyor. When this on delay is too short, the egg-collecting conveyor stops just after an egg is detected. When this timer is too long, too many eggs enter the infeed conveyor causing too much pressure on the gates.
After an egg collecting conveyor stop, the below conditions must be met before this conveyor is allowed to restart again:

- First the roller track makes a certain amount of steps.
- Then one of the start/stop delay sensors no longer detects eggs.
- And at last the pressure control off timer has passed.

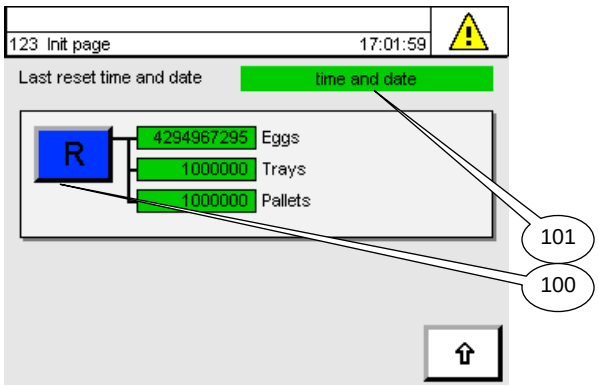
Pressure control off:
This parameter determines the time between one of the start/stop delay sensors no longer detecting eggs and the restart of the egg collecting conveyor. When this time is too short the egg-collecting conveyor stops and starts too often. When this timer is too long, the speedpack stops once in a while because it takes too long before eggs are present in all gates.

Steps pressure control off:
This parameter determines the amount of steps that the roller track has to make after an egg collecting conveyor stop.

Speed belt 1:
This speed setting determines the speed of the optional infeed conveyor (infeed extension).

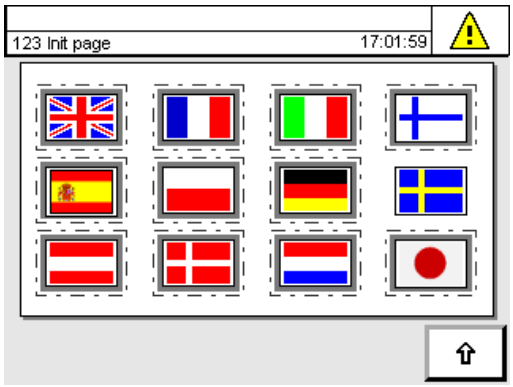
Speed belt 2:
This speed setting determines the speed of the infeed conveyor.

30Cell tray type:
Here it is possible to select the tray type you are going to use for packaging the eggs.
This parameter is only used for controlling the buffer conveyor, downstream of the tray stacker.
When the tray stacker pushes stacks with plastic trays out of the tray stacker the buffer conveyor is not running. When stacks with paper trays are pushed out of the tray stacker, the buffer conveyor runs.



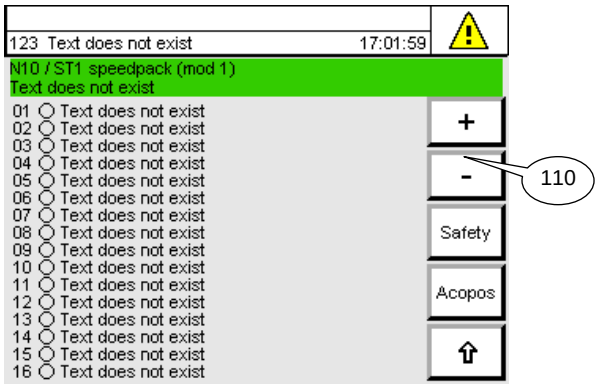
PRODUCTION COUNTERS

In this screen the amount of packed eggs since the last reset is displayed.
By touching the R button (100) all counters are reset. The date and the time of the last reset is displayed on the upper part of the screen (101).



LANGUAGE

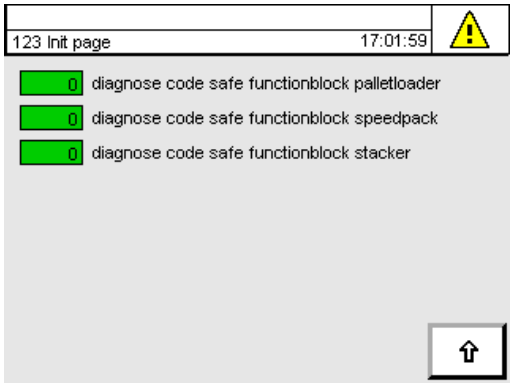
In this screen it is possible to select the language of the touchpanel. The flags with dotted lines around it are the languages which are available in this system.


123 Text does not exist
17:01:59
N10 / ST1 speedpack (mod 1)
Text does not exist
01 Text does not exist
02 Text does not exist
03 Text does not exist
04 Text does not exist
05 Text does not exist
06 Text does not exist
07 Text does not exist
08 Text does not exist
09 Text does not exist
10 Text does not exist
11 Text does not exist
12 Text does not exist
13 Text does not exist
14 Text does not exist
15 Text does not exist
16 Text does not exist
+
-
Safety
Acopos
110

I/O LIST

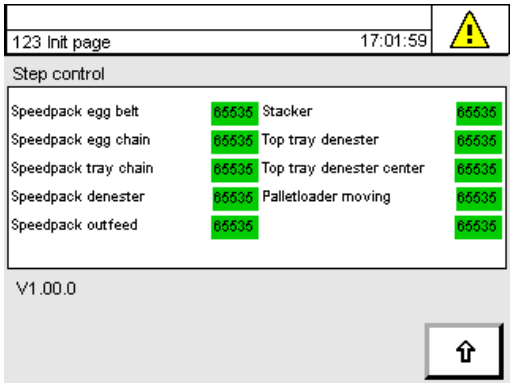
In this screen it is possible to view the status of all the inputs (sensors) and outputs (motors). By touching the + or – buttons (110) it is possible to scroll through the list of Inputs and Outputs.

After touching the safety button, the safety relays diagnose screen appears. In this screen it is possible to view the status of all the safety relays.



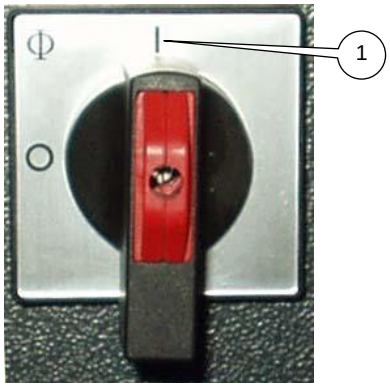
SAFETY RELAYS SCREEN

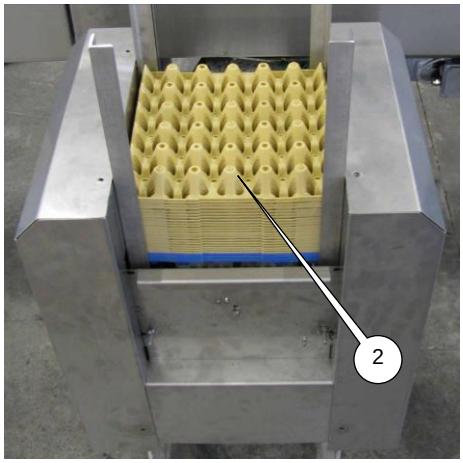
In this screen it is possible to view the status of the safety relays.
During contact with a Prinzen service engineer to solve a breakdown, you may be asked to pass on information from this screen.

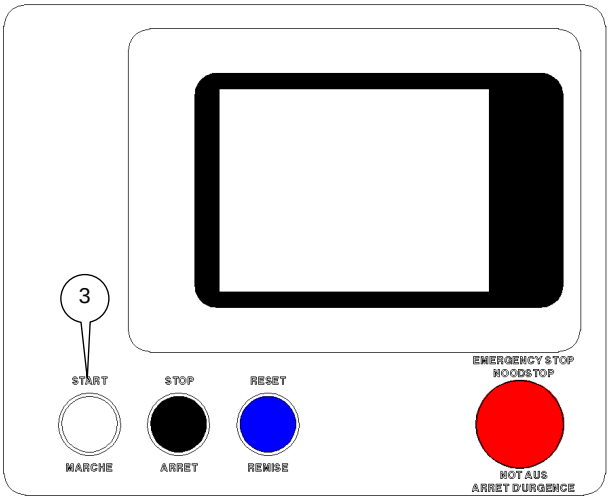


SOFTWARE DEBUG SCREEN

The software debug screen shows information about the status of the software.
During contact with a Prinzen service engineer to solve a breakdown, you may be asked to pass on information from this screen.





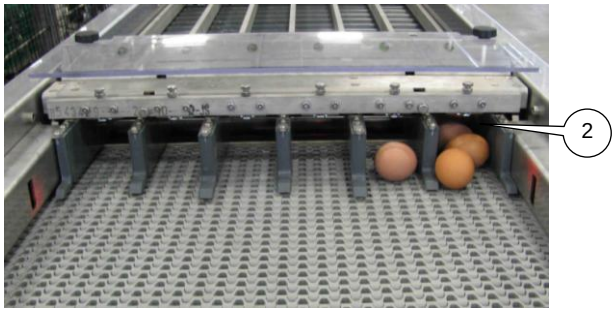


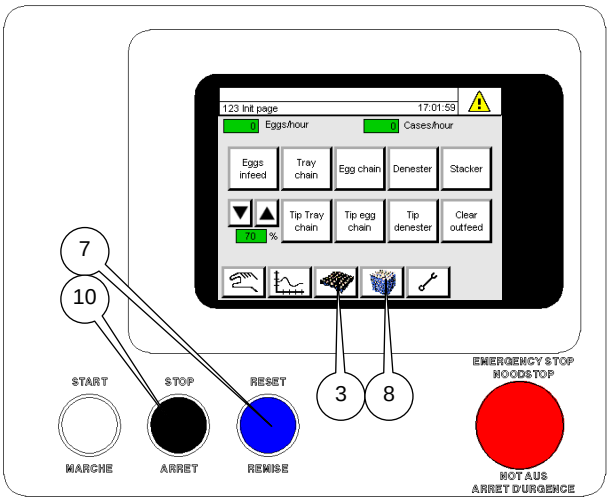
STARTING PRODUCTION

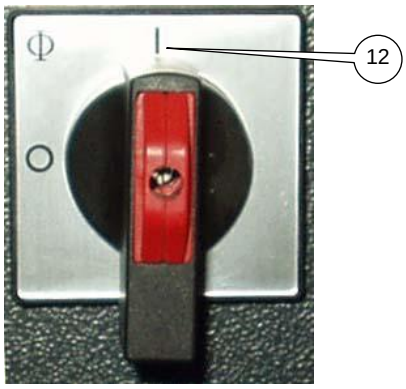
Follow below steps to start up the system:

	CAUTION! Make sure all protective covers are in place. Make sure no persons are in danger.
	ATTENTION! Make sure no tools or other objects are present inside the system.
	ATTENTION! Before starting the system make sure maintenance is performed according to the maintenance instructions further on in this manual.

1. Switch the system ON.
2. Fill the denester bunker with trays. Place the trays with the tray grip pointing towards the front/rear side of the denester.
3. Push the start button to start the system. The light inside the button turns ON.
4. Now the system is running. Normally, after a few seconds, the egg collecting conveyor also automatically starts up







STOPPING PRODUCTION

Follow below steps to stop the system:

1. First wait until no more eggs are supplied on the egg-collecting conveyor.
2. Manually place the last eggs on the infeed conveyor into the gates.
3. Touch the empty speedpack button. The button colors green.
4. Wait until all eggs are placed into the trays. No more eggs should be present inside the speedpack.

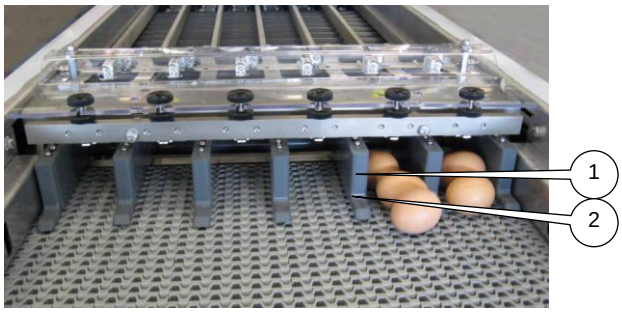
TIP!
The last trays leaving the system may be only partially filled! Remove these trays manually from the tray conveyor.

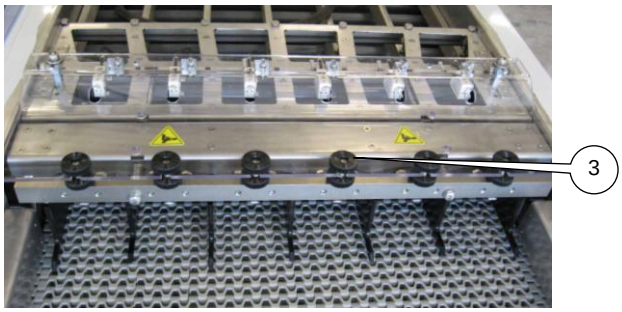
5. A message appears on the screen to remove partially filled trays from tray conveyor / outfeed conveyor. The empty speedpack button colors white again.
6. Manually remove the partially filled trays.
7. Press the reset button.
8. Touch empty tray stacker button. The button colors green.
9. Wait until all trays are removed from the optional tray stacker. The empty tray stacker button colors white again.
10. Push the stop button.
11. Wait until all movements of the system are stopped.
12. Switch the system OFF.

OPERATION ADJUSTMENTS

GATE BLOCKERS

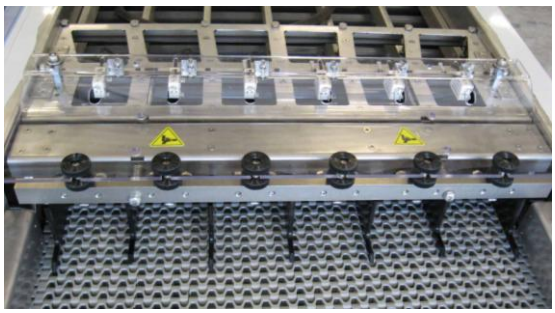
Gate blockers prevent the possibility of 2 smaller eggs entering 1 gate.
When smaller eggs are produced keep all gate blockers in the infeed gates using the 15 mm gate blockers (1).
When the produced eggs are becoming bigger replace the 15 mm gate blockers by the 10 mm gate blockers (2).
As soon as most of the produced eggs are big and the infeed of eggs get stuck by the gate blockers, remove the gate blocker (3).

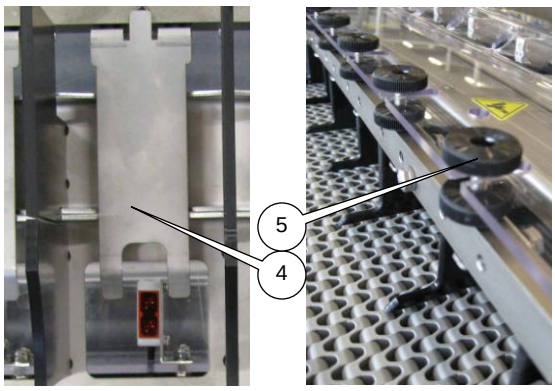


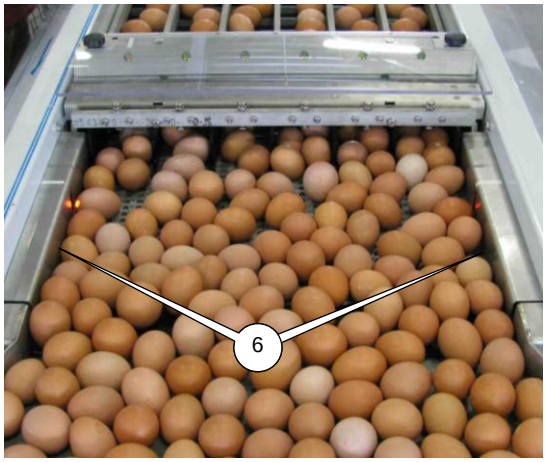


GATE FLAPS

Gate flaps (4) prevent the possibility of a 2nd egg rolling above the 1st egg in the gate at roller track transfer position.
Adjust the height of the gate flaps with the adjustment bolt (5). Turn the bolt counter clockwise to lower the flap for smaller eggs. Turn the bolt clockwise to raise the flap for bigger eggs.
Adjust in such a way that the eggs are nearly not touching the produced eggs.







ON / OFF DELAY TIME

Check the on delay pressure control and pressure control off timers for the infeed conveyor.

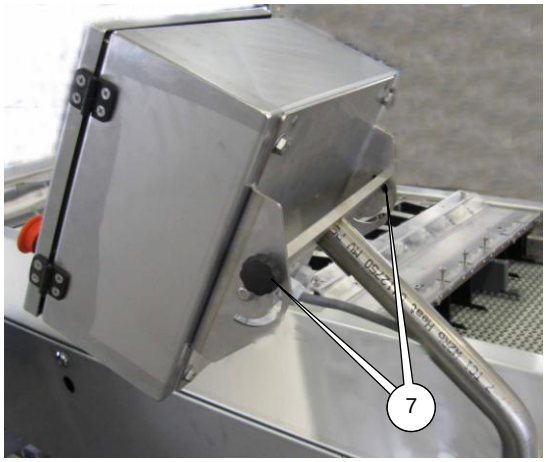
When the infeed conveyor of the speedpack is full with eggs from the egg-collecting conveyor the start/stop delay sensors (6) at the side of the infeed conveyor are activated. When these sensors both remain detecting eggs for a certain time (on delay pressure control time), a signal is sent to the egg-collecting conveyor to stop supplying eggs.

After an egg collecting conveyor stop, the below conditions must be met before this conveyor is allowed to restart again:

- First the roller track makes a certain amount of steps.
- Then one of the start/stop delay sensors no longer detects eggs.
- And at last the pressure control off timer has passed.

When one of the start/stop delay sensors is no longer detecting eggs, a certain time later (pressure control off time) a signal is sent to the egg-collecting conveyor to supply eggs again.

Adjust the delay times to get a smooth flow of eggs without too much starting and stopping of the egg-collecting conveyor.
For adjustment of the timers see the on delay pressure control and pressure control off parameters in the Customer settings screen in this chapter.



OPERATING PANEL POSITION

The position of the operating panel is adjustable. Loosen up both knobs (7) on the rear side of the panel and turn the panel into the required position. Tighten up the knobs afterwards.

4. MAINTENANCE

GENERAL

Only professionals who are familiar with the installation and its operation may perform maintenance, cleaning, repairs and replacement of defective or worn out parts.

When during maintenance questions arise regarding the condition of the system, consult your Prinzen dealer.

In case of difficult or special repairs consult your Prinzen dealer.

Inspections must be carried out before, during and after operation of the machine. Mechanical flaws, such as loose bolts and ball bearings must be repaired upon discovery.

The operator is responsible for noticing and locating abnormal noises and other unusual signs indicating flaws. If the operator cannot locate the flaw, he must stop the installation and inform his superior.

Take preventive actions against vermin as they may cause failures to the electrical cables and such.

SAFETY REGULATIONS

Before starting operation, cleaning, maintaining the system or before remedying breakdowns first read the chapters Introduction and Safety.

MAINTENANCE UTENSILS

In general we advise to have the following tools available for maintenance of the Prinzen systems:

- Padlock.
- Vacuum cleaner.
- Compressed air.
- Plastic scraper.
- Moistened cloth
- Water and neutral soap.
- Lubricants.
- Set of Allen keys.
- Set of wrenches.
- Set of screwdrivers.

RECOMMENDED CLEANING AGENT

Prinzen customers often use Hatchonet cleaning agent for hatcheries for cleaning their systems. The supplier of this cleaning agent is Cid lines. For safe and correct use of this cleaning agent, contact Cid lines. Visit their website to find a local dealer: www.cidlines.com.

Prinzen recommends this cleaning agent instead of others but we cannot verify the correct use of it and thus we cannot guarantee a good cleaning result and avoiding negative influences of it on our systems.

GENERAL CLEANING PROCEDURE

Before actually starting to clean the system, first follow below steps:

- See to it that all eggs are removed by letting the machine run empty.
- Switch off the system and secure it against accidental switching on.
- Clean the complete system with compressed air, a vacuum cleaner and a plastic scraper.
- Remove persisting scrap with a moistened cloth.
- Check the condition of the system during cleaning.

	CAUTION! When using warm water to moisten a cloth, make sure the temperature of the water is below 45°C. Above this temperature it is possible to incinerate body parts.
	ATTENTION! Do not use abrasive cleaning detergents or utensils on non-longwearing parts. Do not use aggressive cleaning products. Use cleaning product with a PH value higher than 6. **Do not use chlorinated cleaning agents.** After cleaning with a cleaning product, rinse off with plenty of water.
	ATTENTION! The system is NOT designed for wet cleaning. Do NOT clean the system with water and certainly NOT with a high spraying pistol. Only use moistened cloths for cleaning. Do NOT clean bearings, printers, robots, electrical parts and pneumatic parts with water.

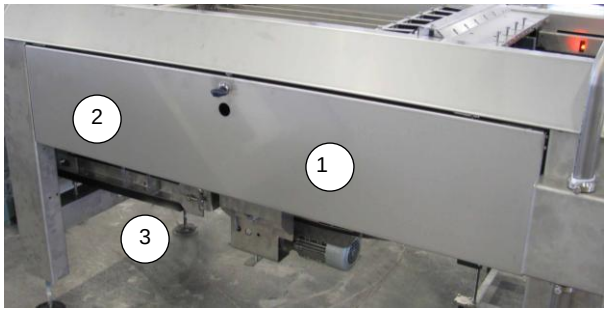
Perform the cleaning according the advices and intervals as described in the Preventive maintenance instructions further on in this chapter.

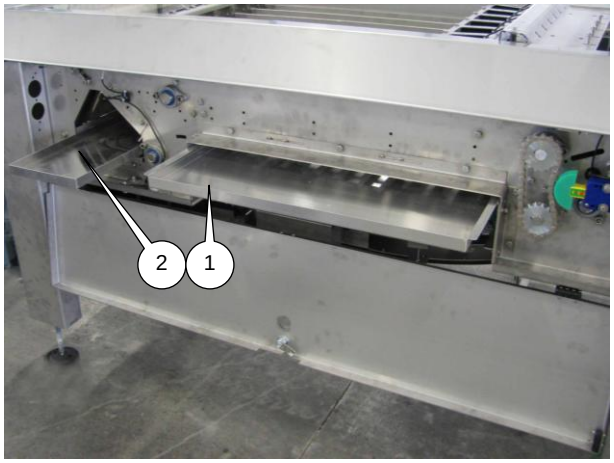
	TIP! The cleaning advices and intervals described in this manual are general. For your specific products and production process the cleaning schedule may need alteration. During the first production months observe the performance of the system and the influence of contamination on the product quality and production process and (if necessary) change the cleaning methods and schedules.

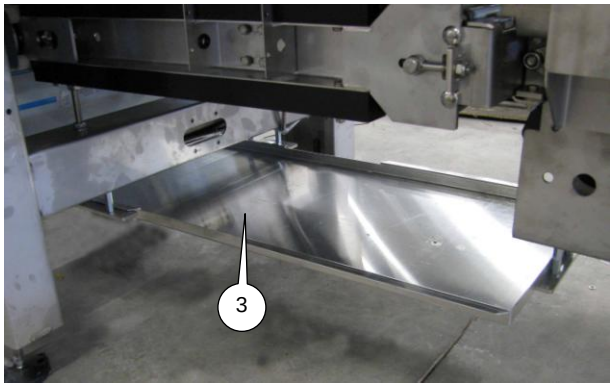
AFTER CLEANING

When the cleaning duties are finished, follow steps below:

- Consult your maintenance engineer in case of questions about the condition of parts.
- Blow dry the system, the system must be absolutely dry before putting it back into operation.
- Lubricate moving parts that have been cleaned.
- Remove excess grease after lubrication.
- Make sure all cleaning utensils are removed from the machine.







CLEANING PREPERATIONS

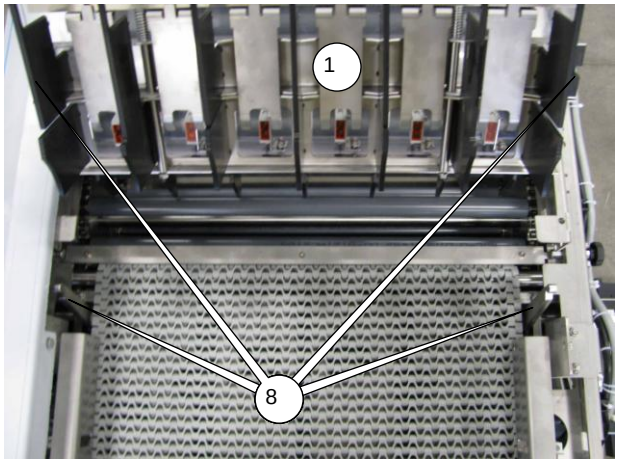
REMOVING DRIP TRAYS

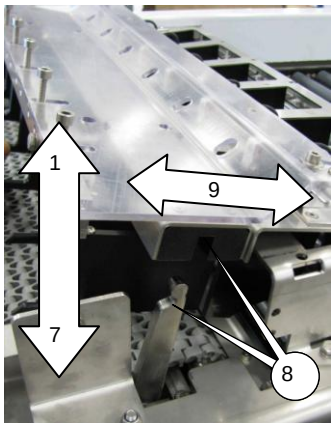
The drip trays underneath the roller track (1) and gripper transport (2) are positioned behind a lockable door. Open the door to have access to these drip trays.

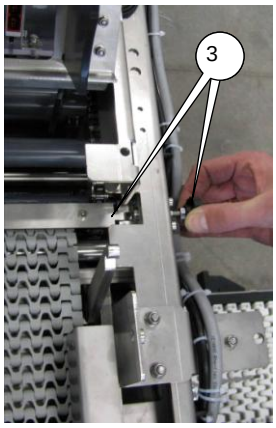
The drip tray underneath the tray conveyor (3) is directly accessible.

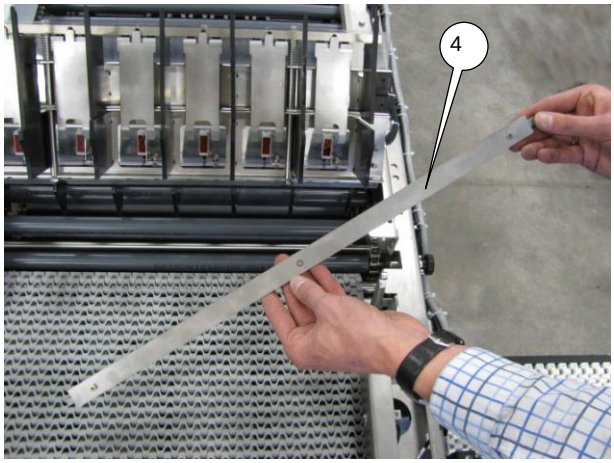
When an optional extended infeed conveyor is part of the speedpack, underneath this conveyor a drip tray (4) is present.

Underneath the optional tray stacker also a drip tray (5) is present.









REMOVING GATES STRIP

For easy cleaning of the strip underneath the gates in between the infeed conveyor and the roller track, it is possible to remove this strip.

Follow below procedure to remove the strip:

1. Lift the complete gate upwards.
2. Open up the cover on one side of the packer.
3. Pull the knob on the side of the packer outwards and at the same time lift the strip up from the strip holder.
4. Remove the strip.

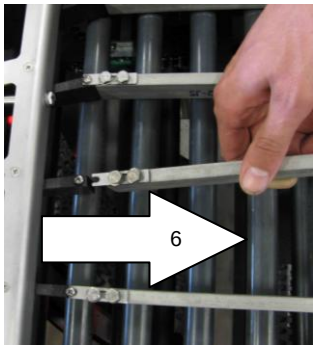
Clean the strip with warm water and a brush.

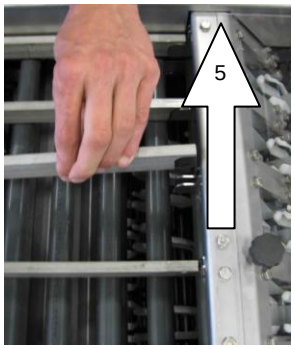
Follow below procedure to place the strip back:

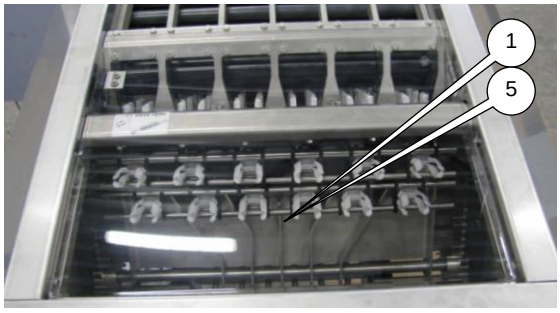
5. Position the strip into the strip holder on one side of the packer.
6. Pull the knob on the other side of the packer, place the strip into this strip holder and loosen the knob.
7. When the strip is correctly placed into both strip holders lower the gate.
8. Make sure the drive levers on both sides of the packer fit into the slotted holes of the drive beam of the moving gates.
9. It is possible to move the beam forwards or backwards to position the slotted holes above the drive levers.

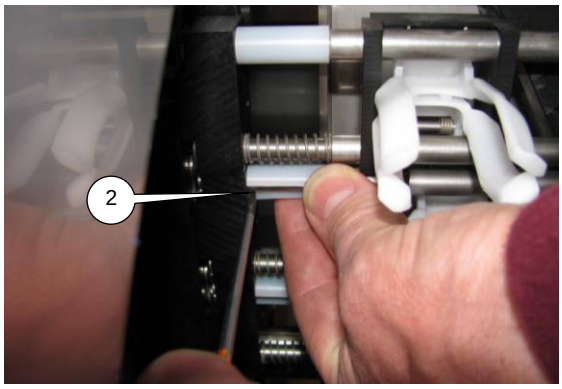
REMOVING ROLLER TRACK GUIDES

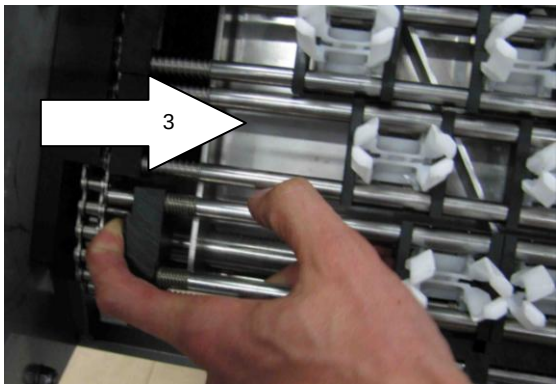
For easy cleaning of the roller track the egg guides (4) are removable.
To remove a guide, lift it up on the gripper transport side (5), and pull it forwards away from the infeed gate (6).











REMOVING GRIPPER SHAFTS

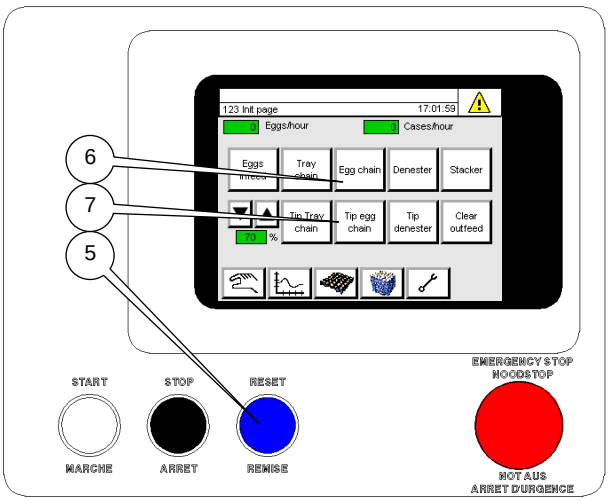
For easy cleaning of the gripper transport, it is possible to remove the gripper shafts with grippers from the gripper transport chain.

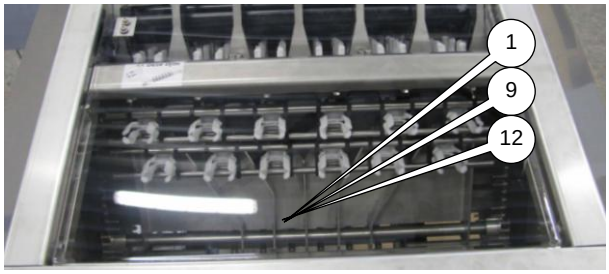
There is only access to a few gripper shafts in the gripper transport. Because of this, after removing a few gripper shafts, the gripper transport needs to make a few steps before it is possible to remove the next few gripper shafts.

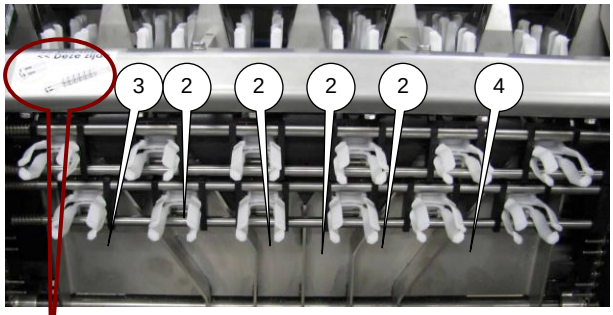
Follow below procedure to remove the gripper shafts:

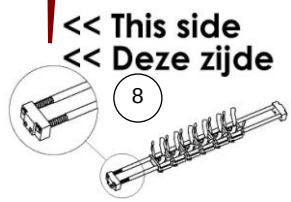
1. Open up the cover of the gripper transport.
2. Remove the safety clip.
3. Push the spring-loaded holder block towards the grippers and move it away from the transport chain.
4. Remove the gripper shaft.
5. After removing a few gripper shafts, close the cover and press the reset button.
6. Touch the egg chain button.
7. Touch the tip egg chain button a few times.
8. Open up the cover again and remove the next few gripper shafts.

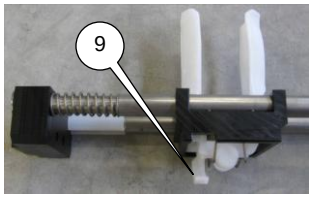
To clean the grippers, let them soak in warm water (maximum 40ºC) until the dirt becomes soft (this may take a few hours). After this rinse off the grippers with water to clean them.

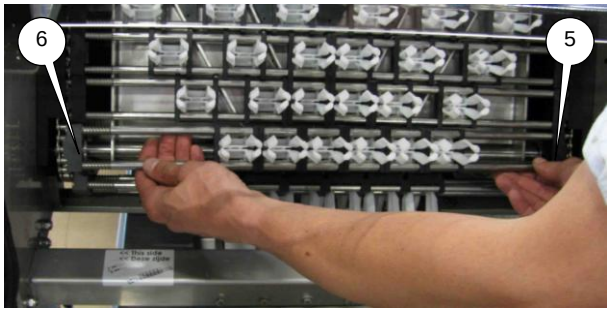


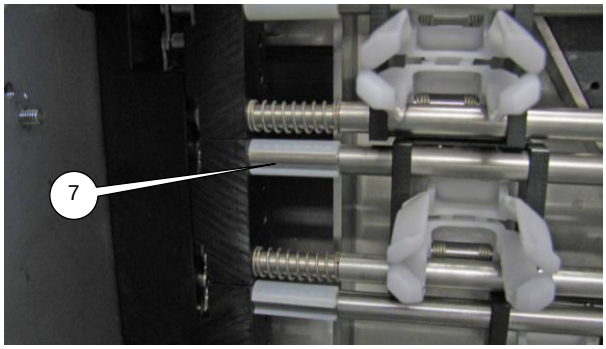


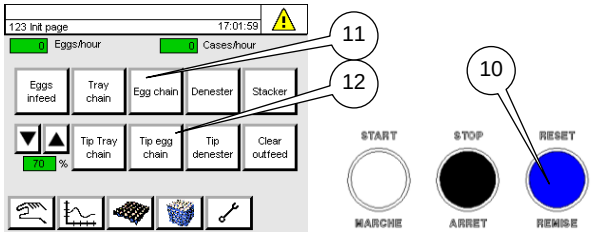












Follow below procedure to place the gripper shafts back into the gripper transport:

1. Open up the cover of the gripper transport.
2. Make sure to position each gripper on the correct position on the gripper shaft. The 4 center grippers must fit into the 4 gripper guides.
3. The most left grippers must be positioned on the left side of the most left guide.
4. The most right gripper must be positioned on the right side of the most right guide.

ATTENTION!
Wrong position of one of the grippers in one of the guides will immediately damage the grippers when the system is started.

5. Put the holder block (not spring-loaded) onto the pins of the right transport chain.
6. Push the spring-loaded holder block towards the grippers and place it onto the pins of the left transport chain.
7. Place the safety clip.
8. Make sure the spring-loaded holder block is placed on the left transport chain! This is marked with a sticker!
9. When the gripper shaft is positioned the other way around, the open/close activation pin damages.

ATTENTION!
Wrong position of gripper shaft on the transport chain will immediately damage the grippers when the system is started.

10. After placing a few gripper shafts, close the cover and press the reset button.
11. Touch the egg chain button.
12. Touch the tip egg chain button a few times.
13. Open up the cover again and place the next few gripper shafts.

RECOMMENDED LUBRICANTS

Prinzen uses Interflon Fin Food Lube Teflon spray and Griffon HR260 Silicone spray. See below table for alternative lubricants and their manufacturers. On the websites of the manufacturers you can find a local dealer for your desired lubricant.

Component:	Lubricant:	Supplied in:	Brand:			Food grade:
Chains Rod ends Guides Bronze plain bearings	Fin Food Lube	Aerosol	INTERFLON	www.interflon.com	Interflon	Yes
	Fin Lube TF	Aerosol				No
	TF089 PTFE spray	Aerosol	GRIFFON	www.griffon.nl	Griffon	No
	Klüberoil 4NH1 4-220N	Aerosol	KLÜBER LUBRICATION	www.klueber.com	Klüber	Yes
	Klüberoil CM 1-220	Aerosol				No
	Cassida PL (Cassida FL5)	Aerosol	FUCHS	www.fuchs.com	Fuchs	Yes
	Gleitmo 985	Aerosol				No
Plastic guides Plastic plain bearings	HR260 Silicone spray	Aerosol	GRIFFON	www.griffon.nl	Griffon	No
	UNISILKON M 2000	Aerosol	KLÜBER LUBRICATION	www.klueber.com	Klüber	Yes
	Cassida Silicone fluid spray	Aerosol	FUCHS	www.fuchs.com	Fuchs	Yes
	Stabylan SI 210	Aerosol				No

ATTENTION!
When you want to use different types of lubricants than the lubricants used by Prinzen, make sure that these lubricants do not form a harmful product when contacting the lubricants used by Prinzen.

NOTE!
Use H1 classified lubricants. These lubricants are approved to use in the food processing industry.

NOTE!
Residues of lubricant must be discharged as chemical waste.

TIP!
Prinzen uses Interflon Fin Food Lube Teflon spray and Griffon HR260 Silicone spray

GENERAL MAINTENANCE PROCEDURE

Before actually starting to maintain the system, first follow below steps:

- See to it that all eggs and trays are removed by letting the machine run empty.
- Switch off the system and secure it against accidental switching on.
- Perform the maintenance.
- Check the condition of the system during maintenance.

	TIP! All motors are provided with lifetime lubrication and require no lubrication.
	TIP! All bearings are sealed and lubricated for life and require no lubrication.

Perform the maintenance according the advices and intervals as described in the Preventive maintenance instructions further on in this chapter.

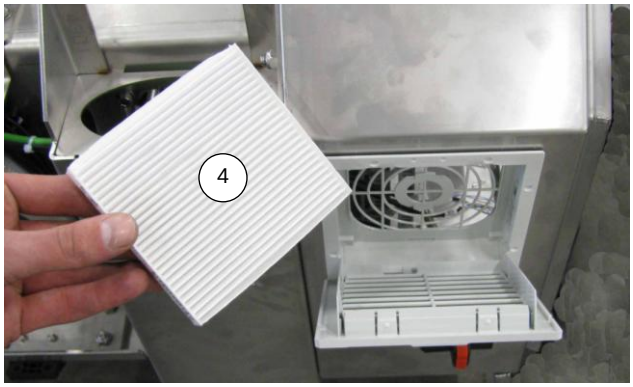
	TIP! The maintenance advices and intervals described in this manual are general. For your specific products and production process the maintenance schedule may need alteration. During the first production months observe the performance of the system and the influence of the maintenance and (if necessary) change the maintenance methods and schedules.

AFTER MAINTENANCE

When the maintenance duties are finished, ensure the following:

- All fasteners are secure.
- All safety covers are in place and safety doors are closed.
- All tools and cleaning utensils are removed from the system.
- The system is absolutely dry before putting it back into operation.
- Moving parts that have been cleaned are lubricated.
- Excess lubricant is removed.
- The system is tested before starting production.

MAINTENANCE COMPONENTS



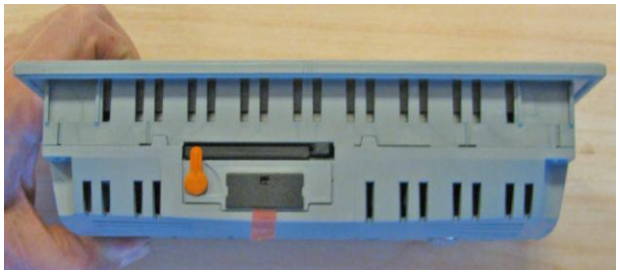
REMOVING FILTER ELECTRICAL CABINET

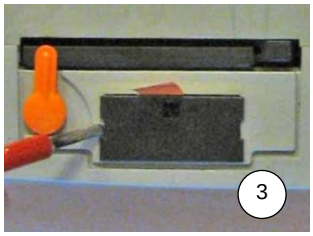
On both sides of the electrical cabinet a filter is placed in front of the air inlet and air outlet. Check this filter once a month for contamination and replace it with a clean filter if necessary.

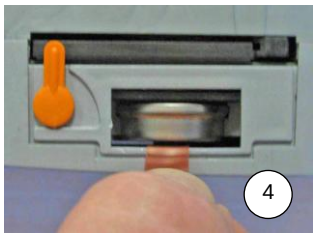
Follow below procedure to replace the filters of the electrical cabinet:

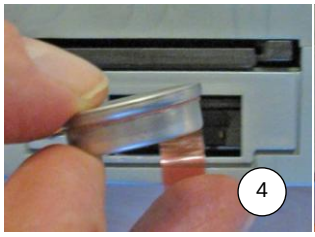
1. Stop the packer.
2. Switch OFF the main switch on the electrical cabinet.
3. Open up the filter holder by pulling the clip on the topside.
4. Replace the contaminated filter in the filter holder by a clean filter.
5. Close the filter holder again.

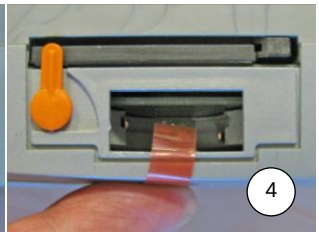
CAUTION!
Always switch OFF the main switch before opening the filter holder!

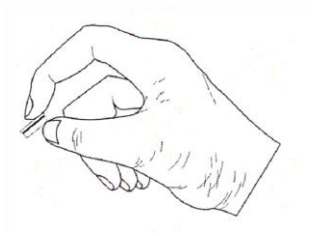


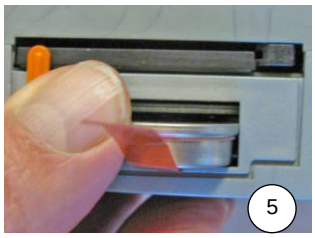


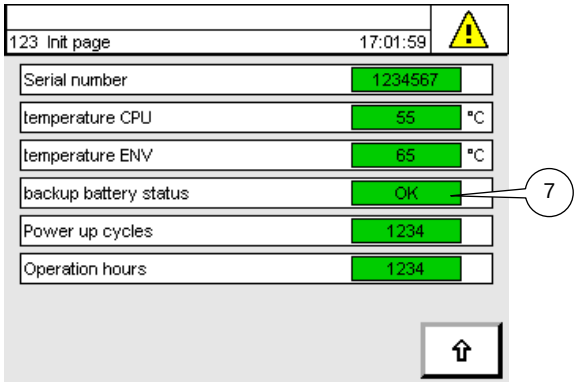












PLC BATTERY REPLACEMENT

Battery replacement:
Parameter settings of the system are stored in the memory of the PLC. When the system is not powered ON, the power for the memory is supplied by a battery.

ATTENTION!
During normal circumstances, never remove the battery. Without battery, data may be lost resulting in malfunctioning of the system.

To prevent loss of the parameter settings, replace this battery of the PLC every 2 years. Try to have a spare battery on stock before the 2 years have passed. The battery is a long lead item, but keep in mind that a battery on stock is leaking juice, so do not keep a battery on stock for more than 1.5 years.

Battery type: CR2477N 3V (Prinzen part number 8001500340).

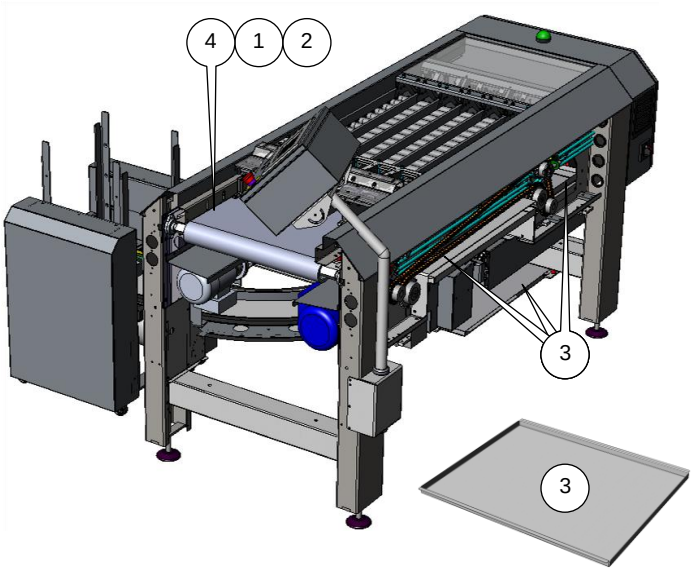
In case the battery is exhausted, the message “Battery discharged” appears on the screen. In that case do not power off the system until you are going to replace the battery!

Battery replacement procedure:

1 When the system is turned OFF, turn the power ON and leave it ON for at least 10 minutes.
2 After at least 10 minutes power ON, turn the power OFF. Now within 10 minutes replace the “old” battery with the “new” one.
3 Touch the housing or other ground connection to discharge any electrostatic charge from your body. Remove the cover of the battery at the rear side of the touchpanel.
4 Carefully pull the strip out to remove the “old” battery. Do not touch the battery on its edges.
5 Carefully place the “new” battery into the battery slot. Make sure the strip remains sticking out of the slot after placement of the “new” battery for the next replacement.
6 Close the cover and switch ON the power supply.
7 Check the battery status in the CPU screen. Make sure OK is displayed.

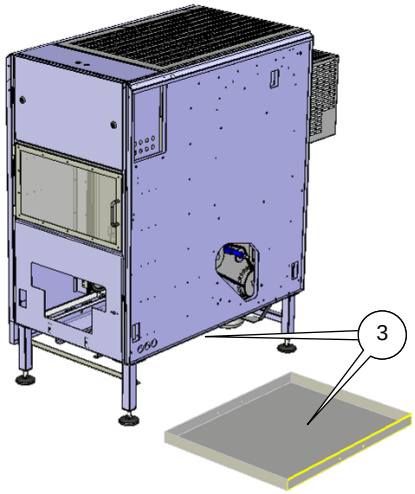
NOTE!
Used batteries must be discharged as chemical waste.

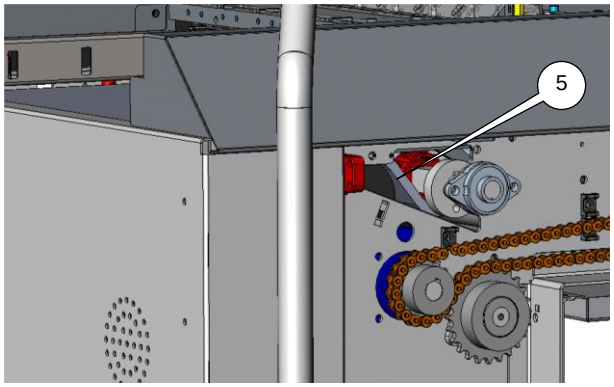
PREVENTIVE MAINTENANCE INSTRUCTIONS



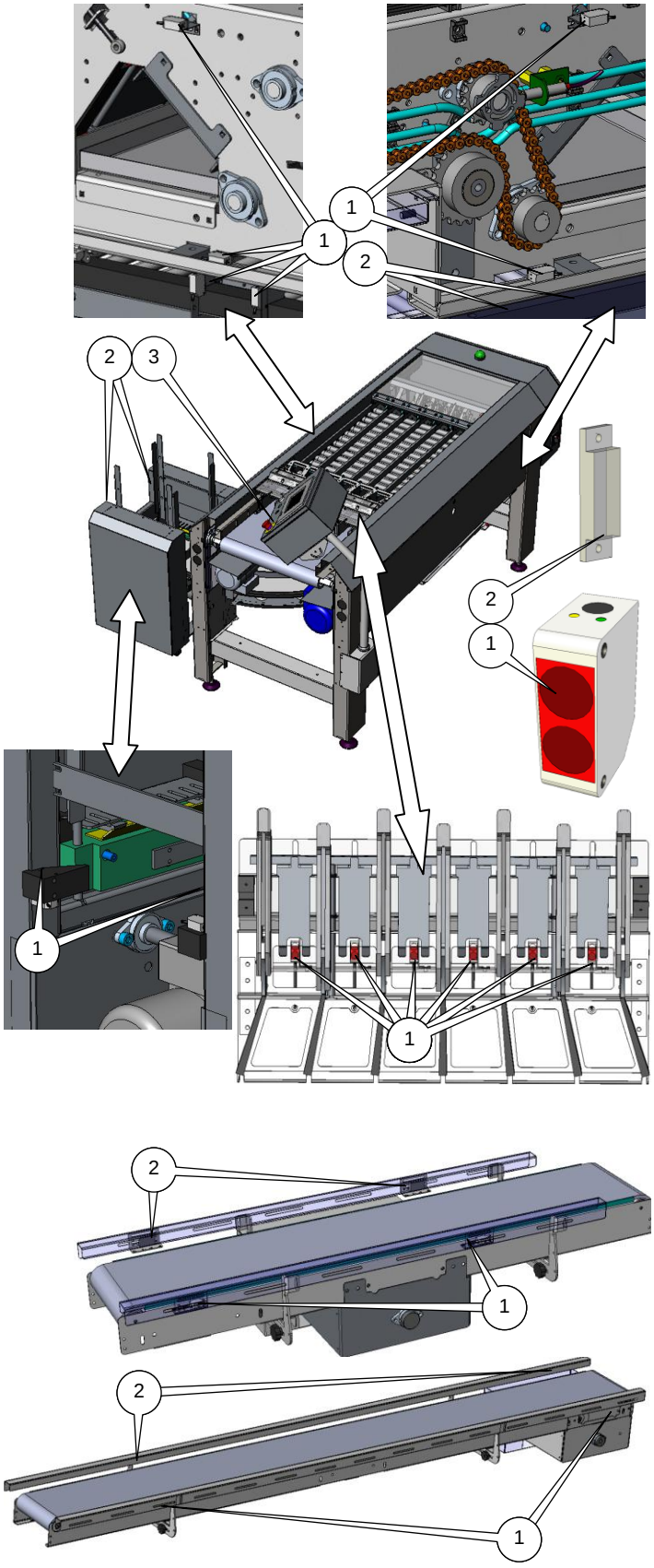
DAILY MAINTENANCE

	Daily Maintenance:	Interval (hours):	h
1	Observe for abnormal sounds, vibrations and heat		8
2	Remove all dirt, grease and feathers from the system		8
3	Clean the drip trays with water (3x)		8
3	Clean tray stacker drip trays with water (2x)		8
4	Clean the infeed conveyor surface with a moistened cloth.		8
5	Clean the back side of the belt with compressed air.		8



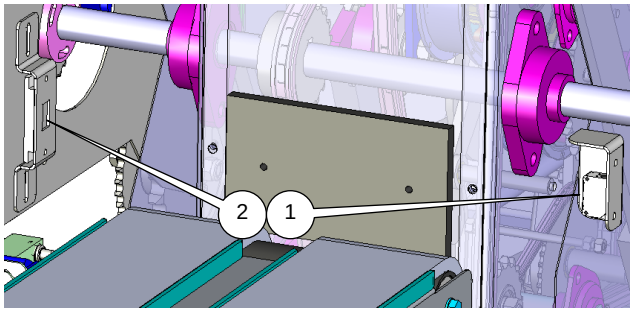


CAUTION!
Wear eye protection during cleaning of the backside of the infeed conveyor with compressed air.

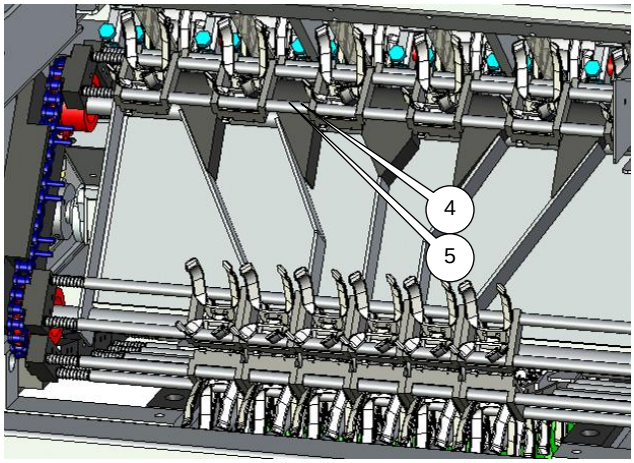


WEEKLY MAINTENANCE

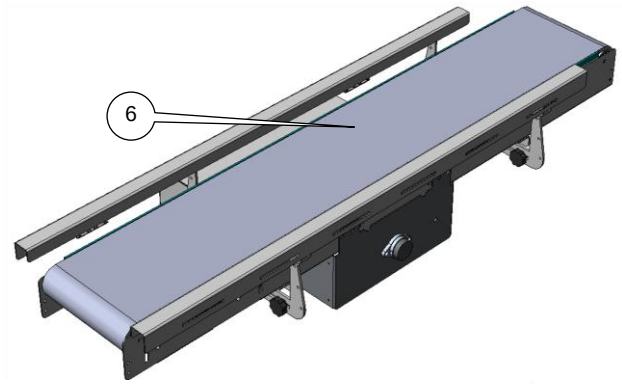
	Weekly Maintenance:	Interval (hours): h
1	Clean all photo switches with a moistened cloth (14x)	40
1	Clean infeed conveyor tray stacker (or optional outfeed conveyor) photo switches with a moistened cloth (2x)	40
1	Clean optional buffer conveyor photo switches with a moistened cloth (2x)	40
1	Clean optional tray stacker photo switch with a moistened cloth.	40
2	Clean the mirrors with a moistened cloth (4x)	40
2	Clean infeed conveyor tray stacker (or optional outfeed conveyor) mirrors with a moistened cloth (2x)	40
2	Clean optional buffer conveyor mirrors with a moistened cloth (2x)	40
2	Clean optional tray stacker mirror with a moistened cloth.	40
3	Check the functionality of the emergency button.	40

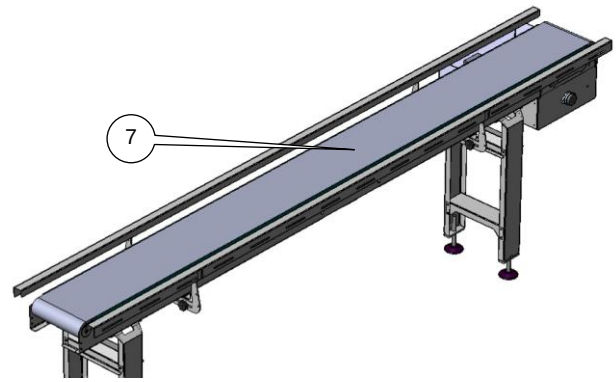


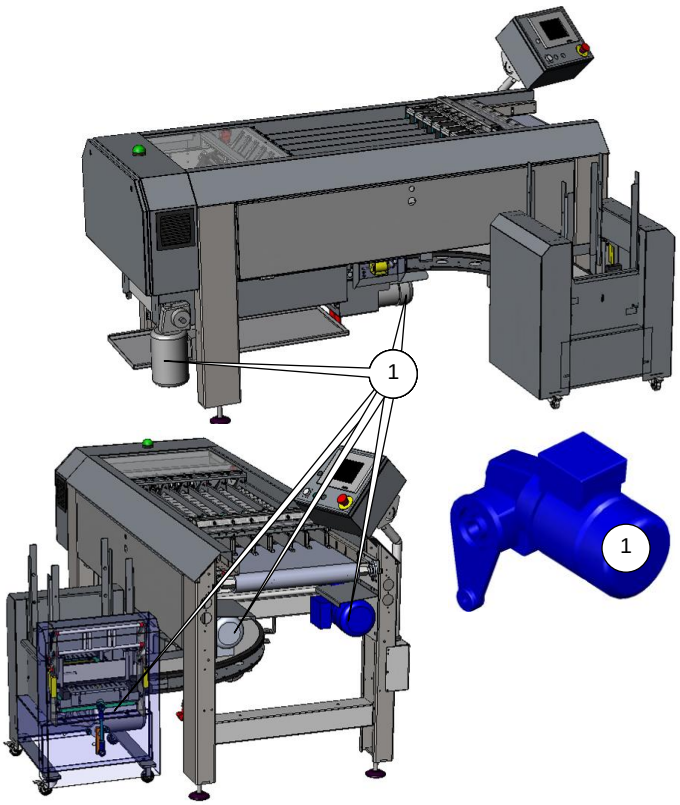
	Weekly Maintenance:	Interval (hours):	h
4	Clean the transport shafts of the grippers.		40
5	Apply silicon spray on the transport shafts of the grippers		40
6	Clean the infeed conveyor tray stacker (or optional outfeed conveyor) belt		40
7	Clean the optional buffer conveyor belt		40



NOTE!
Keep the grippers of the gripper transport free of lubricants to prevent contamination of the eggs.



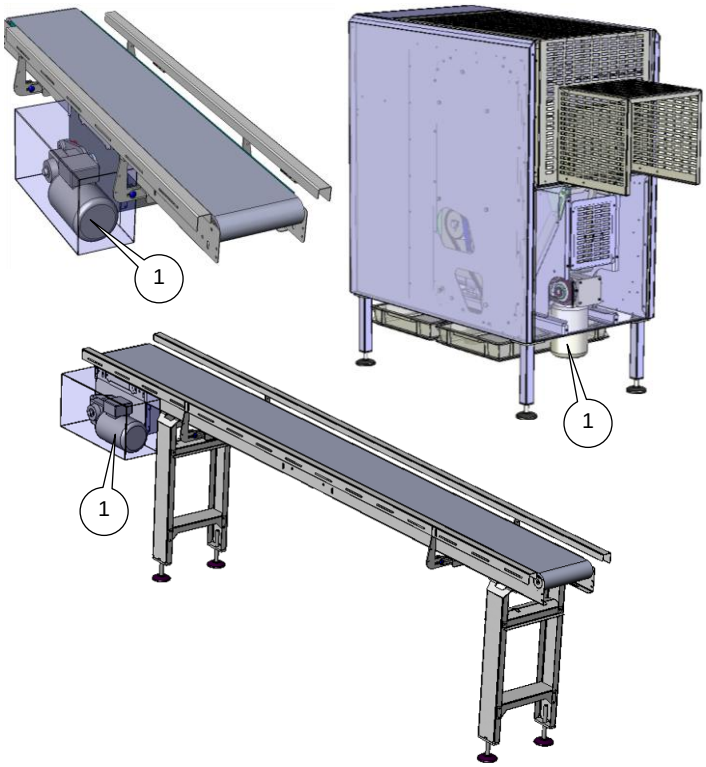


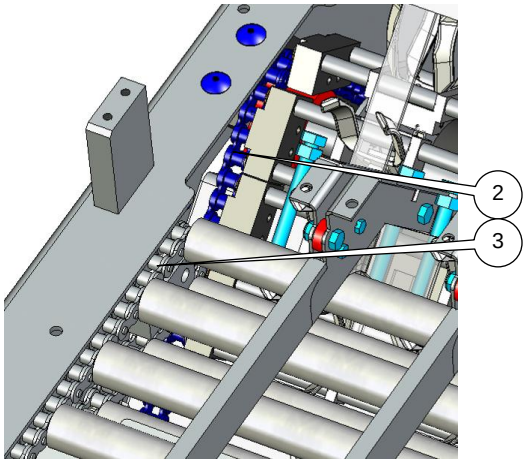


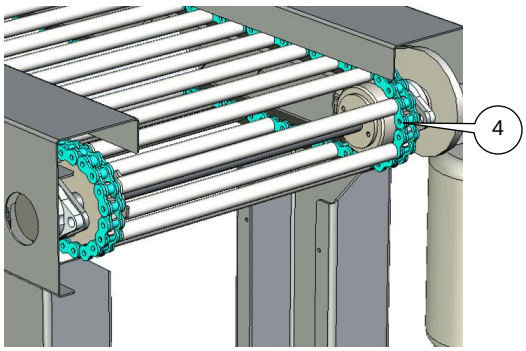
MONTHLY MAINTENANCE

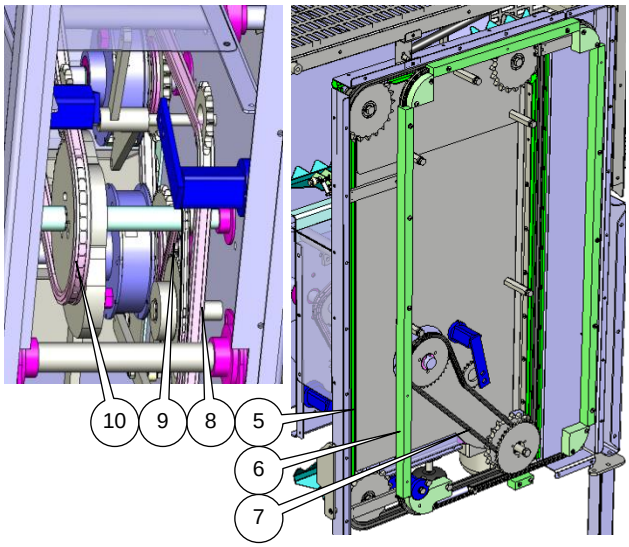
	Monthly Maintenance:	Interval (hours): h
1	Clean all motor fans with compressed air (5x)	200
1	Clean infeed conveyor tray stacker (or optional outfeed conveyor) motor fan with compressed air	200
1	Clean optional tray stacker motor fan with compressed air	200
1	Clean optional buffer conveyor motor fan with compressed air	200

CAUTION!
Wear eye protection during cleaning of the motor fans with compressed air.



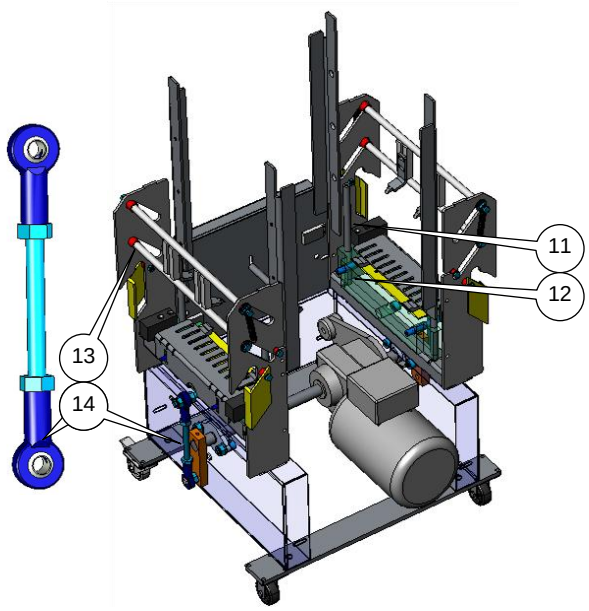


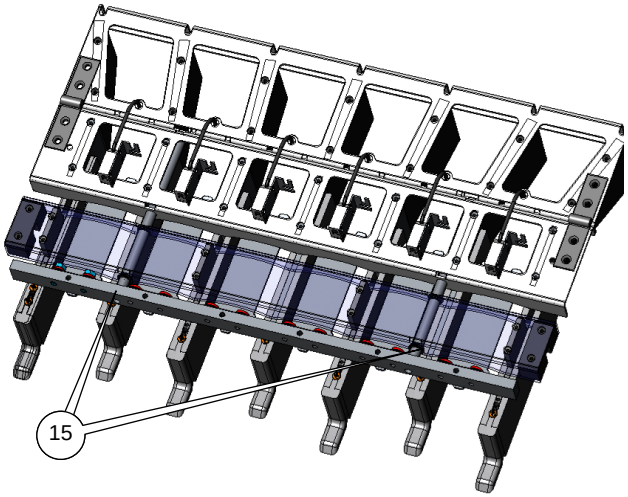




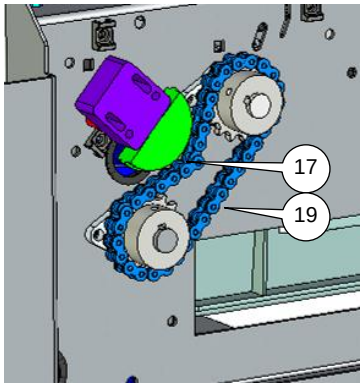
	Monthly Maintenance:	Interval (hours): h
2	Apply Teflon spray on the gripper transport chains (2x)	200
3	Apply Teflon spray on the roller track transport chains (2x)	200
4	Apply Teflon spray on the tray conveyor transport chains (2x)	200
5	Apply Teflon spray on the optional tray stacker gripper transport chains (2x)	200
6	Apply Teflon spray on the optional tray stacker gripper leveling chains (2x)	200
7	Apply Teflon spray on the optional tray stacker gripper drive chains (2x)	200
8	Apply Teflon spray on the optional tray stacker main drive chain	200
9	Apply Teflon spray on the optional tray stacker pusher control chain	200
10	Apply Teflon spray on the optional tray stacker, stacker plate rotating control chain	200

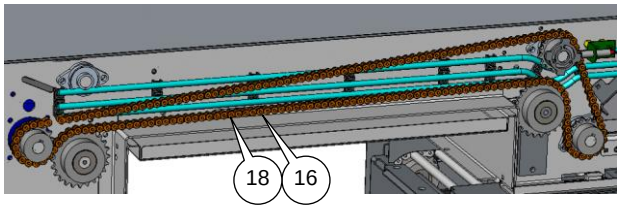
	TIP! Only lubricate the roller track transport chain. Make sure the black rubber supporting guide remain free of lubricants. Lubricant on the black rubber supporting guide causes malfunctioning of the roller shafts.
	NOTE! Keep roller shafts of roller track free of lubricants to prevent contamination of the eggs.
	NOTE! Keep grippers of gripper transport free of lubricants to prevent contamination of the eggs.

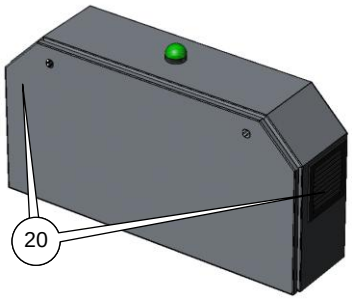




	Monthly Maintenance:	Interval (hours): h
11	Apply silicon spray to the tray denester block up/down guide (4x)	200
12	Apply silicon spray to the tray denester lower grippers in/out guides (4x)	200
13	Apply silicon spray on the 30-cell tray denester upper gripper's plain bearings (8x).	200
14	Apply Teflon spray on rod ends 30 cell tray denester (4x)	200
15	Apply silicon spray on the infeed gate shaking fork plain bearings (4x).	200

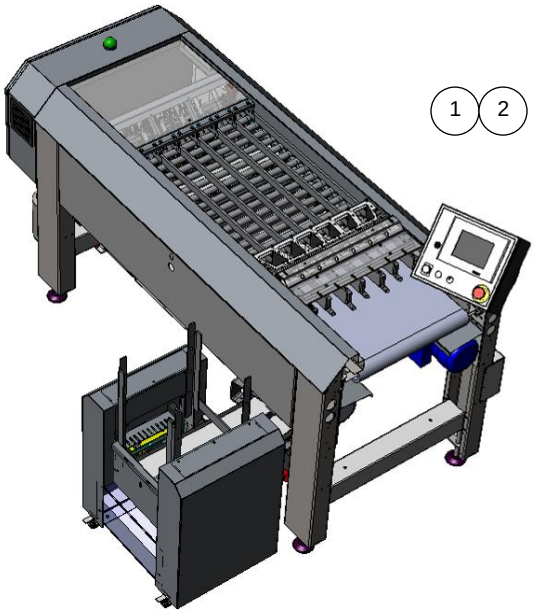






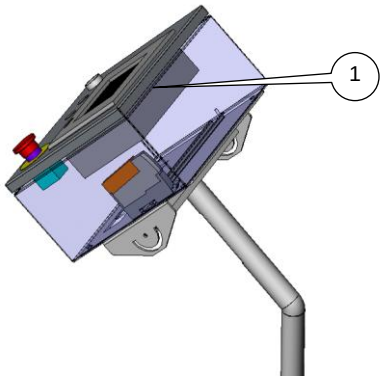
	Monthly Maintenance:	Interval (hours): h
16	Check the main drive chain for wear	200
17	Check the infeed conveyor drive chain for wear	200
18	Apply Teflon spray on the main drive chain	200
19	Apply Teflon spray on the infeed conveyor drive chain	200
20	Check the filters of the electrical cabinet for contamination and replace if necessary (2x)	200

TIP!
When the yellow part on the chain tensioner becomes visible, replace the infeed conveyor drive chain.



½ YEARLY MAINTENANCE

	½Yearly Maintenance:	Interval (hours):	h
1	Check all bearings for wear		1200
2	Check complete system for loose parts, bolts, nuts,..etc		1200



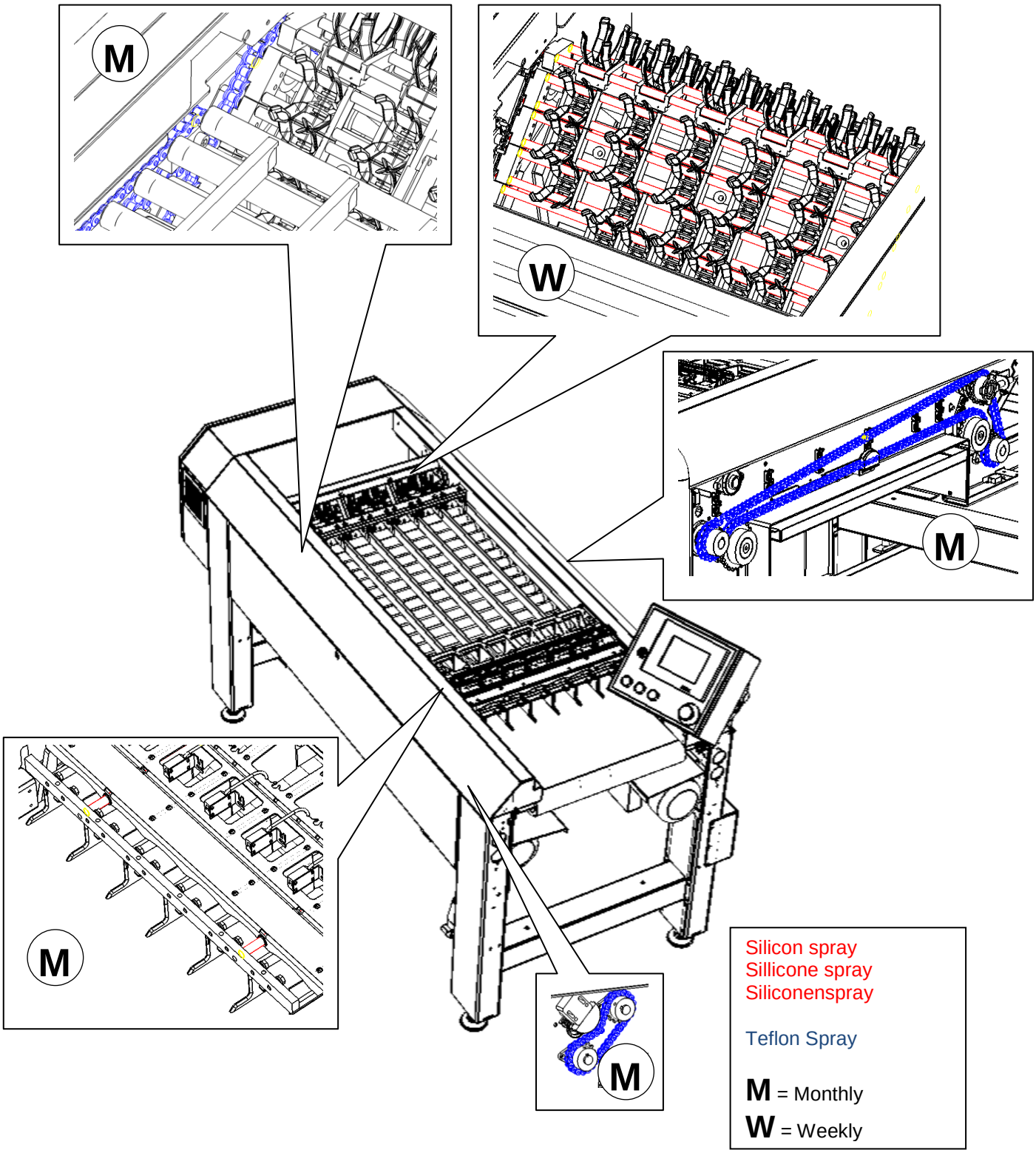
2 YEARLY MAINTENANCE

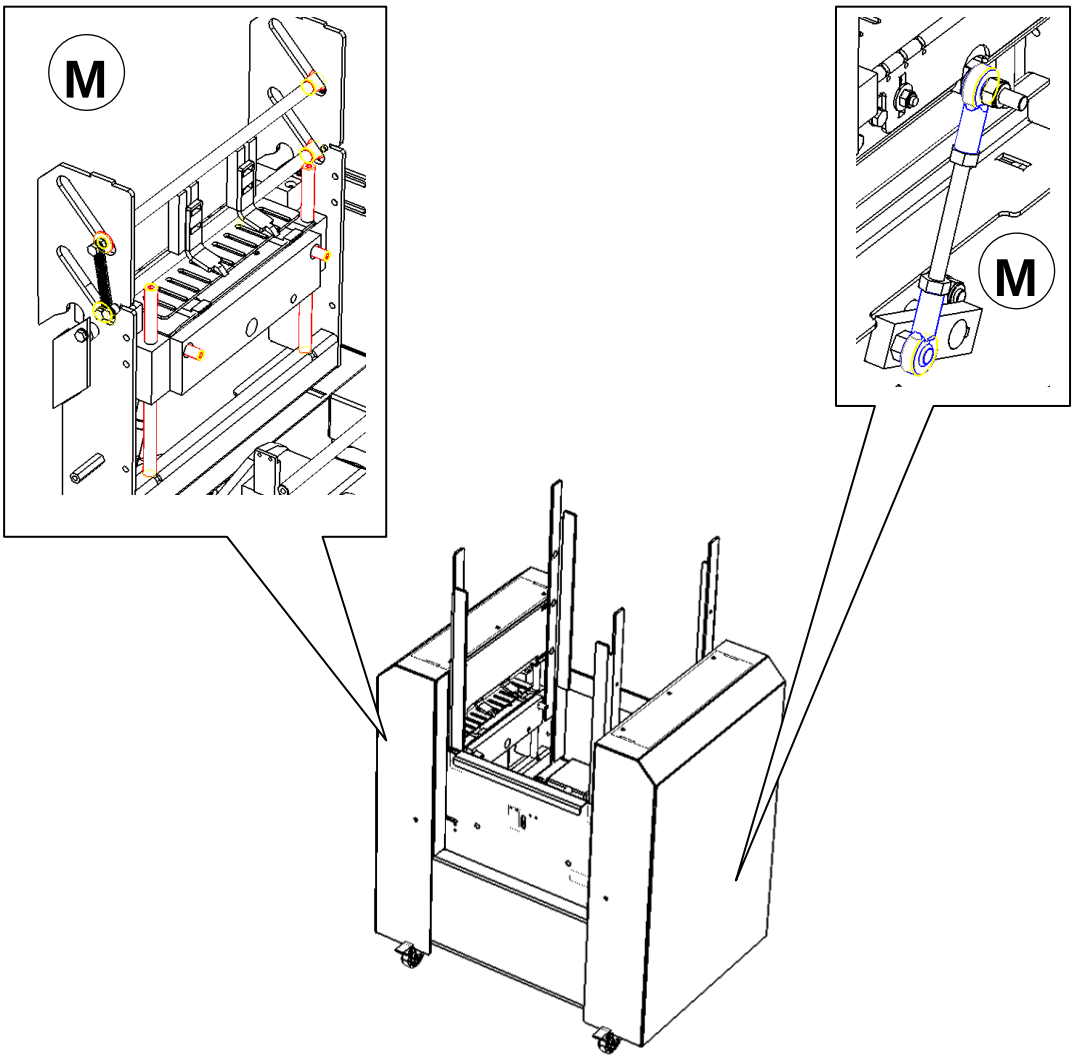
	Yearly Maintenance:	Interval (hours):	h
1	Replace the touchpanel internal battery.		4800

TIP!
When the internal battery of the PLC is empty, the speedpack will malfunction and needs to be re-tuned by a specialist from Prinzen.

TIP!
Although the battery has a lifetime of approximately 5 years, Prinzen advises to replace the battery during a two yearly maintenance.

LUBRICATION DIAGRAM

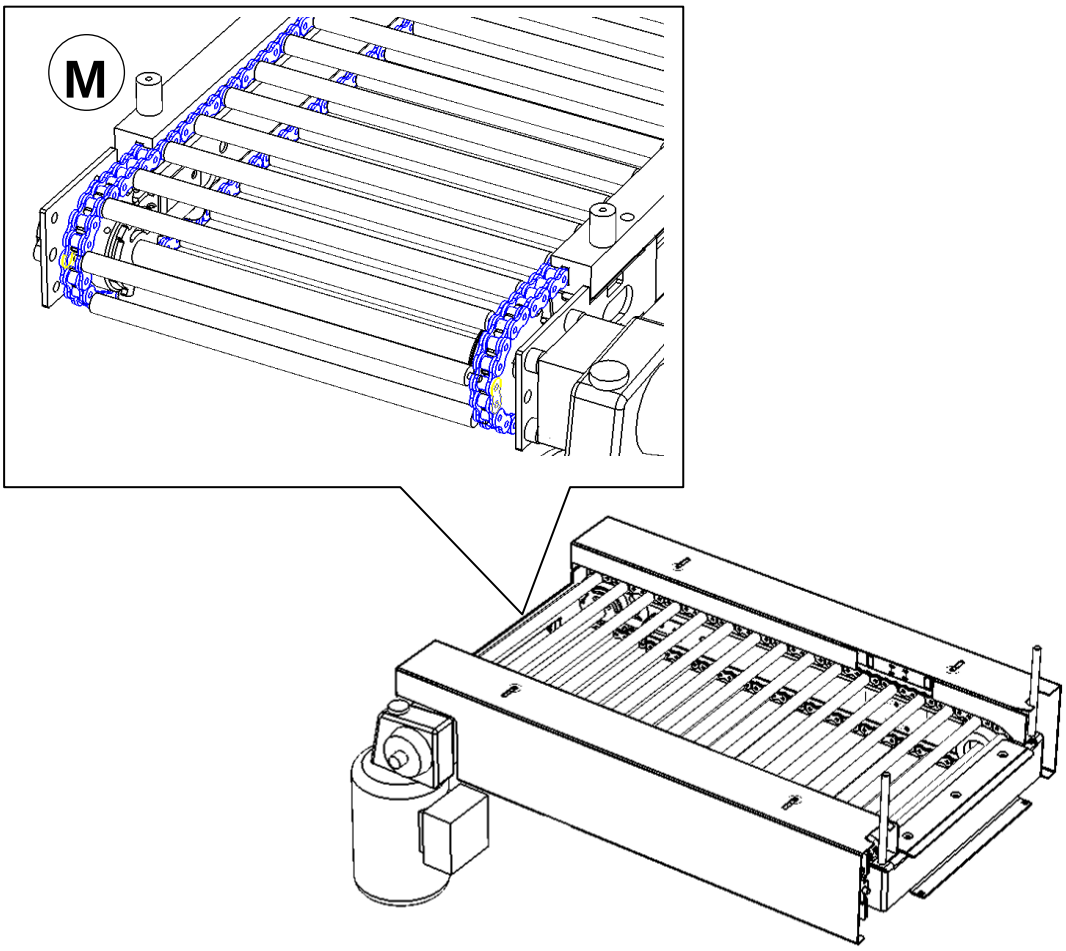




Silicon spray
Sillicone spray
Siliconenspray

Teflon Spray

M = Monthly
W = Weekly



Silicon spray
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Teflon Spray

M = Monthly
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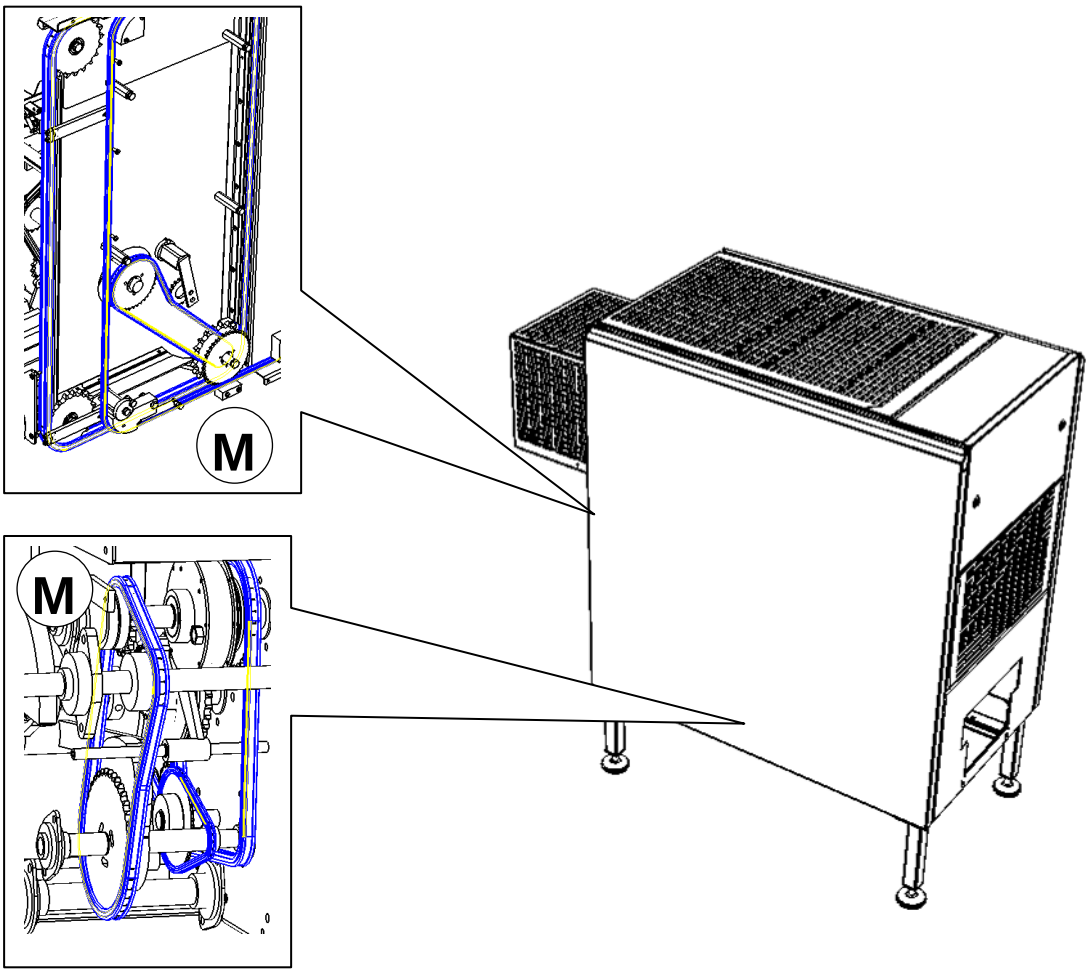


Silicon spray
Sillicone spray
Siliconenspray

Teflon Spray

M = Monthly
W = Weekly

5. SPARE PARTS

LIST WITH RECOMMENDED SPARE PARTS

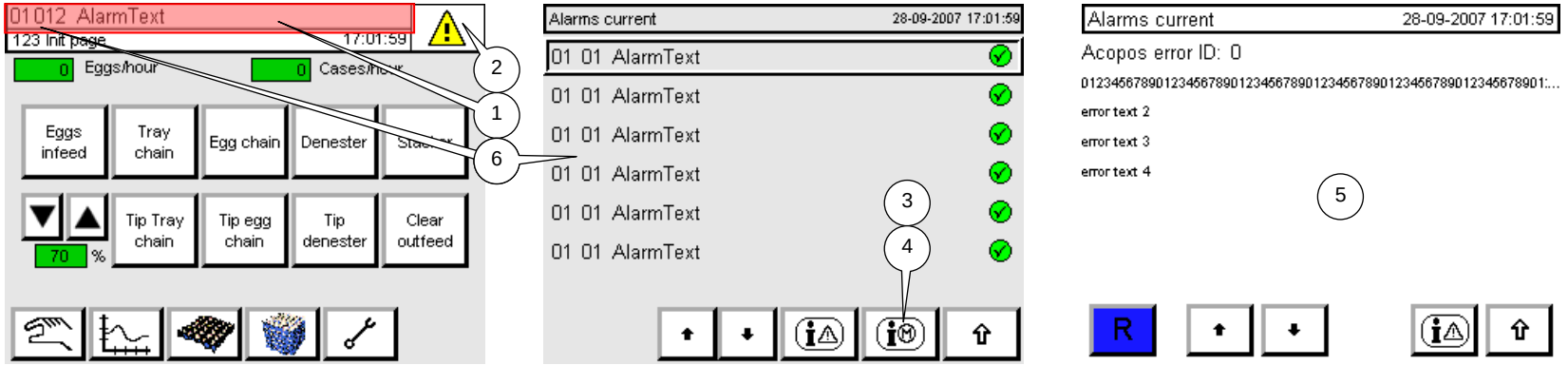
	Adv.	Description	Type / Remarks	Article code
1	10	Gripper shaft		6100100460
2	1	Roller chain main drive	1/2x5/16 08B-1 188 chain links	7000100069
3	2	Transport chain roller track	08B-1 4th pin 151 chain links	7000100070
4	2	Transport chain gripper transport	08B-1 2nd pin 75 chain links	7000100071
5	2	Hollow pin chain tray conveyor	10B-1 101 chain links	7000100072
6	1	Shackle hollow pin chain	5/8x3/8	7000100063
7	1	Shackle chain	08B-1	7000100030
8	1	Chain tensioner big		7001400003
9	1	Chain tensioner small		7001400001
10	2	Rimmed bearing	UFL 004 SS	7001200045
11	1	Optocoupler	24DC RP1D060D4M1PD	8001000002
12		DC power supply	24V/5A	8001300004
13		DC power supply	5V/5W	8001300017
14	1	Photocell	PD30CNB15PPRT	8001600069
15	1	Photocell transmitter	PD30CNT15PMU	8001600070
16	1	Photocell receiver	PD30CNT15PPRT	8001600071
17	1	Photocell reflector	PD30CNP06PPRT	8001600132
18	1	Reflector	Reflector	8001600133
19	1	Relay	G2R-1-SN 24VDC OMRON	8001000003
20	1	Frequency inverter	V1000 0,4/0,75kW	8001100036
21	1	EMC Filter for frequency inverter	V1000	8001100048
23	1	Sensor proximity	E2A-M12LS04WP-B1	8001600014
24	1	Filter electrical cabinet	EFMP200	5702300190
25	1	Infeed belt		7200100051
26	1	Curve belt		7200100061
27	10	Roller for tray conveyor		4000400096
28	1	Motor curve conveyor	0,18kW 109rpm	8500200022
29	1	Motor tray conveyor	0,25kW 46rpm	8500400014
30	1	Motor roller track/gripper transport	0,37kW 55rpm	8500400030
31	1	Motor infeed conveyor	0,18kW 68rpm	8500400031
32	1	Motor tray denester	0,25kW 46rpm	8500400014
33	1	Gripper assembly Tray stacker	PS4	6100100398
34	1	Gripper set plastic Tray stacker	PS4	6100100364
35	8	Spring gripper tray stacker	PS4	7100400030
36	4	Spring top gripper tray denester		7100400036
37	1	Battery for PLC	CR3477N 3V	8001500340

6. TROUBLE SHOOTING GUIDE

HARDWARE TROUBLE SHOOTING

TIP!
For all electrical failures, first check the circuit breakers, motor protection switches and fuses!

When the system was not able to finish a certain movement within the allowed time given for this movement an alarm message appears on the upper line in the touchpanel (1). By touching the alarm button (2), the alarm screen appears (3) displaying the current alarm messages. In case servo drives are present inside the system an acopos button (4) is present. After touching this button the alarm screen for the servo drive appears (5). The below table shows the possible specific alarms that may pop-up. In the table, beside the alarm, the alarm code, the possible cause and an action to solve the error are described. When an alarm pops up, use its alarm code (6) to find the corresponding cause and action in the below table.



Code		Alarm text	Cause	Action
		System alarms		
00	07	Battery Discharged	Battery exhausted.	Contact Prinzen. Do not turn off main power.
		Main errors		
01	00	Error, IO_module number ..... not OK	There is a problem with an input/output module.	Check the module number that is shown for electrical problems.
01	01	Error, modbus watchdog event not ready	There was an inverter error reported by the MODBUS.	Check for configuration errors in the failing inverter.
01	02	Error, modbus open function not OK	The MODBUS function could not be started.	Contact Prinzen.
01	03	Error, modbus watchdog timeout	The MODBUS program did not respond	Contact Prinzen

Code		Alarm text	Cause	Action
		Main warnings		
02	00	Warning, temperature CPU too high	Temperature PLC processor too high	Contact Prinzen
02	01	Warning, temperature in ENV (cooling plate) too high	Surrounding temperature PLC too high	Contact Prinzen
02	02	Warning, backup battery is empty	Memory backup battery empty	Contact Prinzen. Do NOT switch off the system.
02	03	Warning, watchdog step visualisation_control	There was a problem with the visualization on the screen	Contact Prinzen
02	04	Warning, set IP address not OK	An error occurred during saving the network IP address	Contact Prinzen
02	05	Warning, set netmask not OK	An error occurred during saving the network subnet mask	Contact Prinzen
02	06	Warning, set gateway not OK	An error occurred during saving the network gateway address	Contact Prinzen
02	07	Warning, get IP adress not OK	An error occurred during reading the network IP address	Contact Prinzen
02	08	Warning, get netmask not OK	An error occurred during reading the network subnet mask	Contact Prinzen
02	09	Warning, get gateway not OK	An error occurred during reading the network gateway address	Contact Prinzen
02	10	Warning, get nodenumber not OK	An error occurred during reading the node number of the PLC	Contact Prinzen
02	11	Warning, IO_module number ..... not OK	There is a problem with an input/output module.	Check the module number that is shown for electrical problems.
02	12	Warning, I/O module, Bus power supply warning (I>2.3A or U<4.7V)	The bus power supply for the input/output modules is detecting a too high current or a too low voltage.	Check the input/output modules bus for electrical problems like short circuits or bad connections
02	13	Warning, I/O power supply warning (0 = DC OK)	The 24V DC power supply for the input/output modules is too low	Check the 24V DC power supply and wiring for problems
02	14	Warning, Speedpack run empty busy	Empty speedpack is activated by button on the production screen	Wait until the speedpack is finished
02	15	Warning, Emergency stop is active, reset needed	Emergency stop button was pressed and released	Press reset button
		Speedpack errors		
03	00	Error, Speedpack, emergency stop pressed	Emergency stop button is pressed	Turn Emergency button to release emergency stop situation
03	01	Error, Speedpack, emergency stop equivalent	2 switches of emergency stop button are not simultaneously closed	Press emergency stop button and release the button again. Check the switches of the button for defects if this is not working.
03	02	Error, Speedpack, emergency stop channel 1 not OK	Switch #1 of emergency stop button is not working	Press emergency stop button and release the button again. Check switch #1 of the button for defects if this is not working.
03	03	Error, Speedpack, emergency stop channel 2 not OK	Switch #2 of emergency stop button is not working	Press emergency stop button and release the button again. Check switch #2 of the button for defects if this is not working.
03	04	Error, Speedpack, door open	Door open	Close all doors and cover
03	05	Error, Speedpack, door equivalent	2 switches of the door contact are not simultaneously closed	Open and close door again. Check if contact and magnet are in line
03	06	Error, Speedpack, door channel 1 not OK	Switch #1 of door contact is not working	Open and close door again. Check if contact and magnet are in line
03	07	Error, Speedpack, door channel 2 not OK	Switch #2 of door contact is not working	Open and close door again. Check if contact and magnet are in line
03	08	Error, Speedpack, safe outputs not active, reset needed	Safe outputs are not released	Press reset button
03	10	Error, Speedpack, frequency controllers not OK	There is a problem with one of the frequency inverters	Check which frequency inverter has a breakdown
		Stacker errors		
04	00	Error, Stacker, emergency stop pressed	Emergency stop button is pressed	Turn Emergency button to release emergency stop situation
04	01	Error, Stacker, emergency stop equivalent	2 switches of emergency stop button are not simultaneously closed	Press emergency stop button and release the button again. Check the switches of the button for defects if this is not working.
04	02	Error, Stacker, emergency stop channel 1 not OK	Switch #1 of emergency stop button is not working	Press emergency stop button and release the button again. Check switch #1 of the button for defects if this is not working.
04	03	Error, Stacker, emergency stop channel 2 not OK	Switch #2 of emergency stop button is not working	Press emergency stop button and release the button again. Check switch #2 of the button for defects if this is not working.
04	04	Error, Stacker, door open	Door open	Close all doors
04	05	Error, Stacker, door equivalent	2 switches of the door contact are not simultaneously closed	Open and close door again. Check if contact and magnet are in line

Code		Alarm text	Cause	Action
04	06	Error, Stacker, door channel 1 not OK	Switch #1 of door contact is not working	Open and close door again. Check if contact and magnet are in line
04	07	Error, Stacker, door channel 2 not OK	Switch #2 of door contact is not working	Open and close door again. Check if contact and magnet are in line
04	08	Error, Stacker, safe outputs not active, reset needed	Safe outputs are not released	Press reset button
04	10	Error, Stacker, frequency controllers not OK	There is a problem with one of the frequency inverters	Check which frequency inverter has a breakdown
		Palletloader errors		
05	00	Error, Palletloader, emergency stop pressed	Emergency stop button is pressed	Turn Emergency button to release emergency stop situation
05	01	Error, Palletloader, emergency stop equivalent	2 switches of emergency stop button are not simultaneously closed	Press emergency stop button and release the button again. Check the switches of the button for defects if this is not working.
05	02	Error, Palletloader, emergency stop channel 1 not OK	Switch #1 of emergency stop button is not working	Press emergency stop button and release the button again. Check switch #1 of the button for defects if this is not working.
05	03	Error, Palletloader, emergency stop channel 2 not OK	Switch #2 of emergency stop button is not working	Press emergency stop button and release the button again. Check switch #2 of the button for defects if this is not working.
05	08	Error, Palletloader, safe outputs not active, reset needed	Safe outputs are not released	Press reset button on speedpack or palletloader
05	09	Error, Palletloader, Not all Emergency relais are switched off	An emergency relais did not switch off	Check for defect emergency stop relais. (Ignore at power up palletloader)
		Denester errors		
06	00	Error, Denester :Mode Fault	The auto mode could not be started because denester is not ready	Check for mechanical/electrical problems of the denester
06	01	Error, Denester: Fault frequency convertor.	There is a problem with the frequency inverter	Check why the frequency inverter has a breakdown
06	10	Error, Denester: Monitoring time denester motor.	Motor was not stopped in time by proximity switch	Check proximity switch for defects
06	11	Error, Denester: Monitoring time tray transport.	Tray is stuck in denester	Remove tray by hand
06	12	Error, Denester: Too many retry's getting tray.	Denester is empty or cannot denest tray	Fill up denester or adjust grippers denester
		Stacker warnings		
07	00	Warning, Stacker, outfeed full	Sensor stacker outfeed conveyor is activated by stacked trays	Removed stacked trays or check sensor for defects
07	01	Warning, Stacker, simulation tray at infeed on	Tray at stacker infeed is simulated in the menu	Switch to auto setting in the simulation menu
07	02	Warning, Stacker, run empty stacker busy	Empty stacker is activated by button on production screen	Wait until the stacker is finished
		Egg transport warnings		
11	00	Warning, Egg transport: simulation egg's at infeed switched on.	Egg's at infeed is simulated in the menu	Switch to auto setting in the simulation menu
11	01	Warning, Egg transport: simulation egg's in chain switched on.	Egg's in chain is simulated in the menu	Switch to auto setting in the simulation menu
11	02	Warning, Egg transport: maintenance mode switched on.	Maintenance mode is switched on	Switch off maintenance mode in the menu
		Egg transport errors		
12	00	Error, Egg transport: Mode fault.	The auto mode could not be started because egg transport is not ready	Check for mechanical/electrical problems of the egg transport
12	05	Error, Egg transport: Fault frequency convertor.	There is a problem with the frequency inverter	Check why the frequency inverter has a breakdown
12	10	Error, Egg transport: Monitoring time chain.	Motor was not stopped in time by proximity switch	Check proximity switch for defects
12	11	Error, Egg transport: Fault double egg at transfer.	Double egg in the gripper	Remove double egg, press reset and start.
		Egg belts errors		

Code		Alarm text	Cause	Action
13	00	Error, Egg belts: mode fault.	The auto mode could not be started because egg belts are not ready	Check for mechanical/electrical problems of the egg belts
13	05	Error, Egg belts: Fault frequency convertor 1.	There is a problem with the frequency inverter of the first egg belt	Check why the frequency inverter has a breakdown
13	06	Error, Egg belts: Fault frequency convertor 2.	There is a problem with the frequency inverter of the second egg belt	Check why the frequency inverter has a breakdown
		Infeed warning		
14	00	Warning, Infeed: Pressure control active.	There are too many eggs at the infeed gates	Decrease the egg flow to the infeed.
		Outfeed belts errors		
15	00	Error, Outfeed belts: Mode Fault.	The auto mode could not be started because outfeed belts are not ready	Check for mechanical/electrical problems of the outfeed belts
15	01	Error, Outfeed belts: Outfeed is blocked.	Outfeed to next machine/conveyor is blocked by tray	Remove tray by hand
15	05	Error, Outfeed belts: Fault frequency convertor 1.	There is a problem with the frequency inverter of the first speedpack outfeed belt	Check why the frequency inverter has a breakdown
15	06	Error, Outfeed belts: Fault frequency convertor 2.	There is a problem with the frequency inverter of the second speedpack outfeed belt	Check why the frequency inverter has a breakdown
		Outfeed warnings		
16	00	Warning, Outfeed: No release from machine in front.	Machine/conveyor in front of outfeed conveyor is not running	Outfeed conveyor is waiting for release by next machine/conveyor
16	01	Warning, Outfeed: Outfeed full.	Sensor at end of conveyor is detecting a tray	Outfeed conveyor is waiting for release by next machine/conveyor
		Tray transport errors		
17	00	Error, Tray transport: Mode Fault.	The auto mode could not be started because tray transport is not ready	Check for mechanical/electrical problems of the tray transport conveyor
17	05	Error, Tray transport: Fault frequency convertor chain.	There is a problem with the frequency inverter of the tray chain conveyor	Check why the frequency inverter has a breakdown
17	06	Error, Tray transport: Fault frequency convertor curve.	There is a problem with the frequency inverter of the tray curve conveyor	Check why the frequency inverter has a breakdown
17	10	Error, Tray transport: Monitoring time chain.	Motor was not stopped in time by proximity switch	Check proximity switch for defects
17	11	Error, Tray transport: No free space between trays.	Infeed plate to high, or stopper not Ok	Adjust infeed plate and check stopper, press reset and start
		Tray transport warnings		
18	00	Warning, Tray transport: outfeed full.	Stacker infeed conveyor full or speedpack outfeed conveyor	Stacker is not started or can not stack trays because it can not push stack out.
18	01	Warning, Tray transport: simulation tray present switched on.	Tray present is simulated in the menu	Switch to auto setting in the simulation menu
18	03	Please clear outfeed conveyor speedpack and press reset button	Empty speedpack button was pressed on production screen and speedpack is ready now	Remove empty or partially filled tray at speedpack outfeed. Press reset button to start production.
		Stacker errors		
19	00	Error, Stacker, Mode watchdog, end auto	The auto mode could not be started because tray stacker is not ready	Check for mechanical/electrical problems of the tray stacker
19	03	Error, Stacker, tray stacking start plate stuck	Start plate stacker is stuck (only for older models)	Remove eggs, clean start plate